



Disclaimer

This material was used by Elliott Davis during an oral presentation; it is not a complete record of the discussion. This presentation is for informational purposes and does not contain or convey specific advice. It should not be used or relied upon in regard to any particular situation or circumstances without first consulting the appropriate advisor. No part of the presentation may be circulated, quoted, or reproduced for distribution without prior written approval from Elliott Davis.



Agenda of Topics

Preparing for a Financial Statement Audit

Obtaining a Model Validation

Common Validation Findings

Tips for Strengthening Internal Controls

Model Administration Considerations



Preparing for a Financial Statement Audit elliott davis

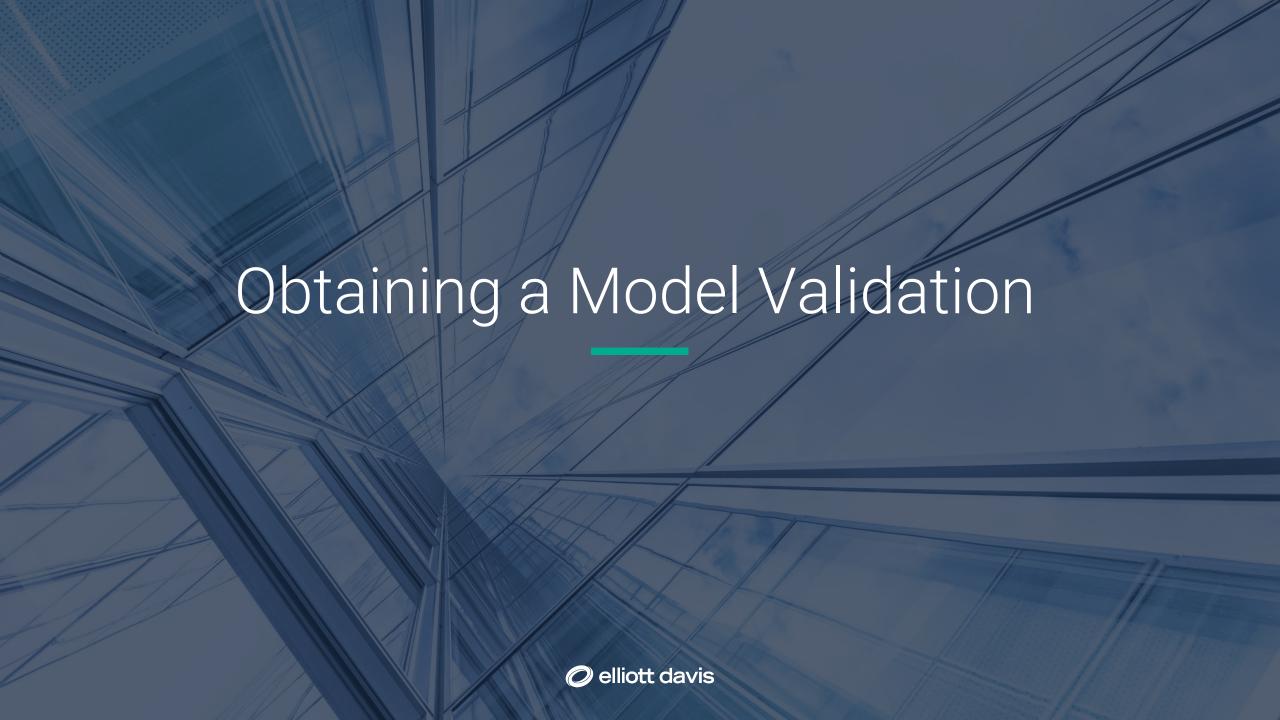


Preparing for a Financial Statement Audit

When preparing for your audit, consider the following:

- Prepare relevant documentation as of:
 - Implementation date
 - Year end date
 - Interim periods (as applicable)
- Collect relevant vendor documents
 - Model certification, SOC I, SOC II, whitepapers, etc.
- Discuss validation expectations with external auditor
 - Model validation vs. internal audit







Components of a Validation



Model Governance



- Procedures
- Controls

- Oversight
- Model Administration



Conceptual Design

- Methodology
- Segmentation
- Elections / Assumptions •
- Use of Peer Data

- Forecasting Method
- Individually Evaluated
- Qualitative Factors
- Unfunded Commitments



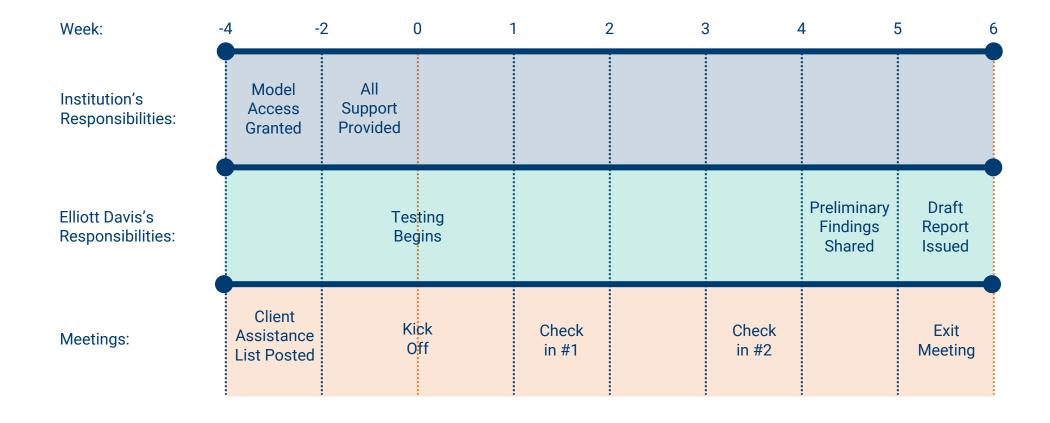
Technical Construct

- Model Inputs
- Historical Data Accuracy
- Peer Data Accuracy
- Manual Overrides
- All Calculations

- Upstream Inputs
- Individually Evaluated
- Qualitative Factors
- Model Outputs



Example Timeline





Example Request List

- Formal CECL/ACL policy
- Formal implementation memo
- Procedural document/narrative
- Key control listing
- Model methodology documentation (whitepaper)
- Management's analysis of key assumptions
- Read-only access to CECL model platform
- Loan subledger detail for period under review
- General ledger detail for period under review
- Management's reconciliation of loan detail to general ledger

- Loan level charge-off and recovery detail for entire lookback period
- Support for peer group (if applicable)
- Qualitative factor framework and support
- Support for individually evaluated loans
- Model provider's SOC 1 report
- Management's evaluation of End User Entity Controls (CUECs) stated in the SOC 1 report
- CECL/ACL Committee Minutes
- Supervisory Committee Minutes



Findings and Model Rating

Typically, findings will be risk-scored based on a predetermined criteria like the one illustrated below:

High Risk Issue	High Risk validation findings address technical limitations that create severe to major model risk or governance issues. These findings must be remediated prior to the next model run.
Moderate Risk Issue	Moderate Risk validation findings address technical issues that create moderate model risk, add incremental accuracy to model output, or enhance governance. These findings should be reviewed, researched, and resolved within 120 days.
Best Practice Recommendation	Best Practice recommendations address technical issues that create minor to insignificant model risk, add limited incremental accuracy to model output, add reporting / analysis enhancements, or more directly align governance with guidance. These recommendations should be reviewed, researched and implemented as deemed necessary.

An overall rating should be assigned to the model:

Satisfactory	Management can rely upon the results from this model to help them make decisions. While not critical in nature, there may be items related to this model that warrant attention as time and resources allow.
Needs Moderate Enhancements	This model is relatively stable, but there are multiple weaknesses in the model that should be addressed prior to the next model run.
Needs Significant Improvements	This model cannot be used / relied upon in its present form. Management must take immediate action to correct material weaknesses with this model for the model to be used / relied upon as the model is failing to meet regulatory expectations.







#1: Qualitative Factors

Frequent issues related to qualitative factors include:

- Duplicative coverage of risks addressed by quantitative model
- Lack of supporting documentation
- Input and mathematical errors in Excel-based overlays
- Process for reevaluation and updating
- Anchoring and scaling



Common Qualitative Factors

Most commonly seen qualitative factors are those from the Interagency Policy Statement on ACL:

- 1. The nature and volume of the institution's financial assets;
- 2. The existence, growth, and effect of any concentrations of credit;
- 3. The volume and severity of past due financial assets, the volume of nonaccrual assets, and the volume and severity of adversely classified or graded assets;
- 4. The value of the underlying collateral for loans that are not collateral-dependent;
- 5. The institution's lending policies and procedures, including changes in underwriting standards and practices for collections, write-offs, and recoveries;
- 6. The quality of the institution's credit review function;
- 7. The experience, ability, and depth of the institution's lending, investment, collection, and other relevant management and staff;
- 8. The effect of other external factors such as the regulatory, legal and technological environments; competition; and events such as natural disasters; and
- 9. Actual and expected changes in international, national, regional, and local economic and business conditions and developments in which the institution operates that affect the collectibility of financial assets.

Anchoring / Scaling Examples

Actual and expected changes in international, national, regional, and local economic and business conditions and developments in which the institution operates that affect the collectibility of financial assets.

Economic Research Division
Federal Reserve Bank of St. Louis

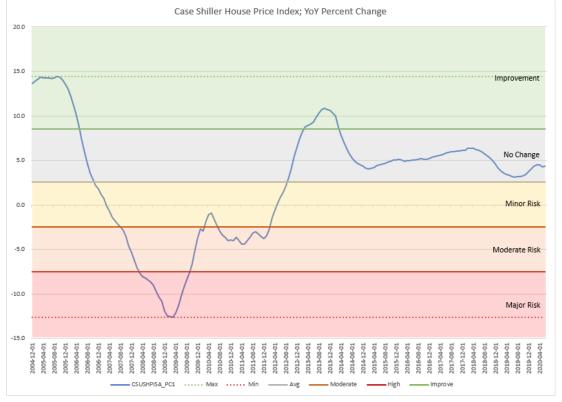
CSUSHPISA_PC1: S&P/Case-Shiller U.S. National Home Price Index, Percent Change from Year Ago, Monthly, Seasonally Adjusted

Frequency: Monthly

Frequency, Monthly	COLLOURION DOA
observation_date	CSUSHPISA_PC1
2004-12-01	13.7
2005-01-01	13.9
2005-02-01	14.1
2005-03-01	14.3
2005-04-01	14.3
2005-05-01	14.3
2005-06-01	14.2
2005-07-01	14.2
2005-08-01	14.3
2005-09-01	14.4
2005-10-01	14.3
2005-11-01	14.1
2005-12-01	13.5
2006-01-01	13.0
2006-02-01	12.2
2006-03-01	11.2
2005-12-01 2006-01-01 2006-02-01	13.5 13.0 12.2

Calculation	Result
Minimum	-12.6
Average	2.6
Maximum	14.4

Risk Classification	Value
Improvement	>14.4
improvement	8.50
No Change	8.50
	2.6
Minor	2.6
WIIIO	-2.5
Moderate	-2.5
Moderate	-7.5
Major	-7.5
Widjor	<-12.6



#2: Data Integrity Issues

Frequent issues related to data integrity include:

- Accuracy of historical information used in model
- Unintended consequences of batch imports
- Loan fields used by models not covered by onboarding / maintenance controls (origination date, maturity date, payment type, payment amount, interest rate, fixed/variable, purpose code, risk grade, etc.)
- Clerical errors



#3: Documentation Shortcomings

Items to consider including in a policy:

- The model owner
- The department/person responsible for overseeing validation of the model
- The frequency of model validation and whether that is performed internally or externally
- Key assumptions and the frequency in which those assumptions will be stressed/the frequency of sensitivity analysis
- The frequency with which back-testing or outcomes analysis will be performed
- Documentation around qualitative factors, including:
 - Identification of established qualitative factors
 - How they relate to relevant risks within the portfolio or specific segments thereof
 - What the factors are anchored to
 - The formal process by which qualitative factors will be updated
- Treatment of unfunded commitments including; applicable methodology, how funding/utilization rates were derived, and plans to stress the funding rate (as it is a key assumption)
- Individually evaluated loans including; the criteria for loans to be individually evaluated, the process for entering loan specific information (including collateral value, etc.) into the model, and review controls related thereto
- The reasonable and supportable forecast methodology (including the frequency of updating underlying data points and where external data is derived)



Honorable Mentions

- 1. Failure to have a reasonable and supportable forecast
- 2. Unfunded Commitment Liability
 - Lack of support for utilization/funding rates
 - Improper input of loss rates used in calculation (when UCL is performed outside of the model)
- 3. Design weakness / operating failure of internal controls



Tips for Strengthening Internal Controls elliott davis

Tips for Strengthening Internal Controls

Recommended internal control considerations include:

- Loan and loss reconciliations.
- Qualitative factors (how they're updated, reviewed and approved)
- Management review of manual inputs
- Model process checklist completion and review
- Completion/accuracy of individually evaluated loans
- Oversight and approval
- Model validation
- Accounting for ACL
- Recurring approval of the CECL policy
- Vendor SOC 1 report review/CUECs
- User permissions/IT access controls for model platform



Model Administration Considerations elliott davis

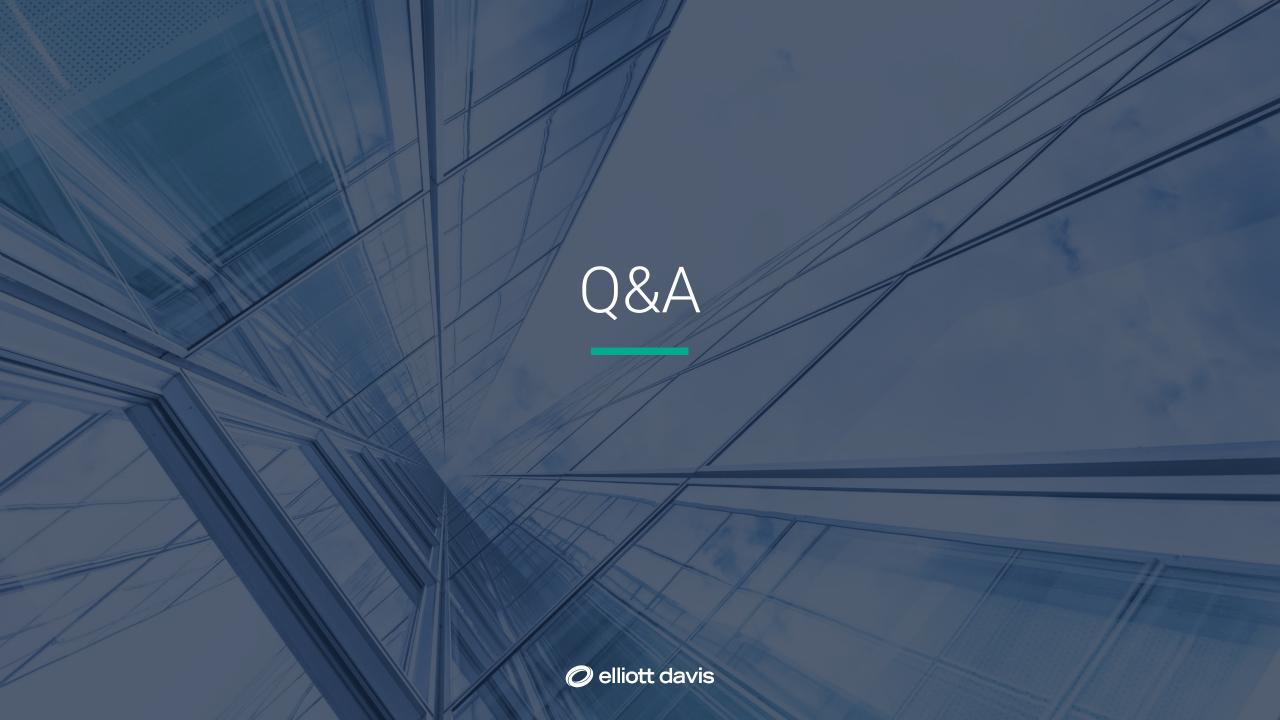


Model Administration Considerations

Considerations for the ongoing administration / monitoring of models should include

- Model Governance
 - Maintaining Oversight
 - Outcomes Analysis / Backtesting
 - Sensitivity Analysis
- Consideration of Changing Environments / Circumstances
 - Peer vs. institution data
 - Updating prepayment, attrition, probability of default, loss given default, and funding/utilization rates
- Emerging risks
- Model Validation







500 East Morehead Street Suite 700 Charlotte, NC 28202

Direct: 704.808.5213 **Office:** 704.333.8881

alek.bevensee@elliottdavis.com

Alek Bevensee, CPA

Senior Manager

Services: Assurance | **Emphasis:** Financial Services

Professional Overview

Alek has spent his entire career working with financial institutions, both public and private. He specializes in the areas of internal controls (SOX/FDICIA), regulatory compliance, and model validation. Recently, Alek led several firm initiatives related to emerging technologies and data analytics, helping to develop the firm's Analytics & Insights service line. Recent projects include developing monitoring solutions for loan portfolios (credit, compliance, and operational risk), and aiding companies with calculation and remediation of multi-million-dollar errors related to the administration of employee benefit plans.

Education, Credentials, and Special Training

Certified Public Accountant Master of Accountancy, University of South Carolina B.S., Accounting, University of South Carolina

Professional Affiliations

American Institute of Certified Public Accountants | Member North Carolina Association of Certified Public Accountants | Member, Presenter South Carolina Association of Certified Public Accountants | Presenter Association of Credit Unions and Risk Professionals | Presenter

Civic and Community Activities

Blumenthal Performing Arts Center | Finance and Audit Committee Member

