OSFI Guideline E-23

# Model Risk Management Assessment Report

# 1. Model Information

Model Name: Advanced Credit Risk Model

Assessment Date: September 11, 2025

Framework: OSFI Guideline E-23 Model Risk Management

Effective Date: May 1, 2027

Scope: Federally regulated financial institutions

Risk Rating: Critical

Risk Score: 88/100 points

# 2. Executive Summary

This AI/ML-powered, financial decision-making, customer-facing model presents critical model risk requiring maximum governance controls under OSFI Guideline E-23 Model Risk Management framework. Maximum governance controls including board oversight, external validation, and continuous monitoring are required. The assessment indicates Critical risk classification requiring appropriate risk management intensity commensurate with the model's risk profile.

# 3. Model Description and Business Rationale

Comprehensive AI-powered credit risk assessment model using machine learning algorithms to analyze customer financial data, transaction patterns, and behavioral indicators for loan approval decisions in real-time processing environment.

Business Rationale:

This model supports risk management objectives by providing quantitative risk assessments to inform business decisions and regulatory compliance requirements.

# 4. Model Risk Assessment

## 4.1 Risk Rating Methodology

The model risk rating follows OSFI E-23 methodology, evaluating both quantitative and qualitative risk factors. Quantitative factors include portfolio size, financial impact, and operational criticality. Qualitative factors assess model complexity, autonomy level, explainability, and third-party dependencies. Risk amplification is applied when high-risk combinations are identified, such as AI/ML usage in critical financial decisions.

## 4.2 Quantitative Risk Factors

* Significant financial impact on institution and customers
* Direct customer impact requiring enhanced controls
* High transaction volume requiring robust processing capabilities
* Revenue-critical application with business continuity implications
* Regulatory compliance and reporting dependencies

## 4.3 Qualitative Risk Factors

* AI/ML technology requiring specialized validation and monitoring
* Autonomous decision-making with limited human oversight
* Real-time processing with immediate decision impact
* Limited model explainability and transparency
* Sensitive data processing requiring enhanced controls
* Direct customer decision impact requiring fairness controls

## 4.4 Risk Interactions and Amplification

* High-risk combination: AI/ML in financial decision-making
* High-risk combination: Autonomous decisions with limited explainability

# 5. Model Risk Management Framework

## 5.1 Organizational Structure and Accountability

Model Owner: Business unit responsible for model outcomes and business rationale

Model Developer: Technical team or vendor responsible for model development and maintenance

Model Reviewer: Independent validation team responsible for model review and testing

Model Approver: Approval authority as per risk level: Board of Directors or CEO

Model Risk Committee: Senior committee providing oversight and governance for model risk

Compliance Officer: Compliance function ensuring adherence to regulatory requirements

Board Oversight: Board of Directors providing oversight for critical models

External Validator: Independent third-party validation for critical model components

## 5.2 Policies, Procedures, and Controls

* Model Risk Management Policy defining roles, responsibilities, and governance framework
* Model Development Standards specifying technical and documentation requirements
* Model Review and Validation Procedures for independent assessment processes
* Model Approval Procedures defining authority levels and approval criteria
* Model Monitoring and Performance Management Procedures
* Model Change Management Procedures for updates and modifications
* Model Decommission Procedures for retirement and replacement processes
* Enhanced Documentation Standards for complex and high-risk models
* Bias Testing and Fairness Assessment Procedures for AI/ML models
* Third-party Model Oversight Procedures for vendor-developed models

# 6. Model Lifecycle Management

## 6.1 Model Design

* Clear organizational rationale and business case documentation
* Comprehensive data quality and governance standards
* Appropriate model development methodology and documentation
* Performance criteria and success metrics definition
* Model limitations and assumptions documentation
* Detailed explainability and interpretability analysis
* Comprehensive bias and fairness assessment
* Regulatory compliance and impact analysis

## 6.2 Model Review and Validation

* Independent conceptual soundness review
* Comprehensive performance evaluation and testing
* Risk rating confirmation and documentation
* Model documentation completeness review
* Limitation and mitigation strategy assessment
* Enhanced validation testing including stress scenarios
* External validation for critical model components
* Regulatory pre-approval consultation where applicable

## 6.3 Model Deployment

* Quality assurance and change control processes
* Production environment testing and validation
* Stakeholder coordination and communication
* Risk assessment completion and sign-off
* Monitoring framework setup and configuration
* Enhanced production testing with parallel run validation
* Real-time monitoring and alerting system activation
* Contingency and rollback procedure implementation

## 6.4 Model Monitoring and Performance Management

Monitoring Frequency: Daily monitoring with weekly comprehensive review

Key Performance Indicators:

* Model performance accuracy and stability metrics
* Prediction quality and consistency indicators
* Data quality and completeness measures
* Usage patterns and volume statistics
* Bias and fairness metrics for protected characteristics
* Explainability and transparency measures
* Regulatory compliance indicators
* Customer impact and complaint metrics

## 6.5 Model Decommission

* Formal model retirement process and timeline
* Stakeholder notification and communication plan
* Documentation retention and archival procedures
* Downstream system impact assessment and mitigation
* Third-party model considerations and vendor coordination
* Data retention and disposal procedures
* Replacement model transition planning

# 7. Documentation Requirements

* Model rationale and business purpose documentation
* Data sources, quality standards, and governance documentation
* Model methodology, assumptions, and limitations documentation
* Performance metrics, validation results, and testing documentation
* Risk assessment and mitigation strategy documentation
* Detailed explainability and interpretability documentation
* Comprehensive bias testing and mitigation measures documentation
* Audit trail and change management documentation
* Contingency planning and rollback procedures documentation
* Board presentation and approval documentation
* External validation and independent review reports
* Regulatory compliance attestations and correspondence
* Continuous monitoring dashboards and alert configurations

# 8. Compliance Checklist

✓ Model inventory registration (design - Required)

✓ Risk rating assignment (design - Required)

☐ Board-level approval (review - Required)

☐ External validation (review - Required)

# 9. Implementation Timeline

Design Phase: 12-16 weeks

Review Phase: 6-8 weeks

External Validation: 4-6 weeks

Deployment Phase: 5-7 weeks

Monitoring Setup: 4-5 weeks

# 10. Recommendations and Next Steps

* Establish comprehensive Model Risk Management framework aligned with OSFI E-23
* 🚨 CRITICAL: Obtain board-level approval before deployment
* Implement maximum governance controls and oversight
* Conduct external validation and independent review
* Establish dedicated Model Risk Committee
* Implement continuous monitoring with real-time alerts

# 11. Appendices

## Appendix A: OSFI E-23 Core Principles

Principle 1.1: Organizational Enablement

Effective reporting structures and proper resourcing should enable sound model governance

Principle 1.2: MRM Framework

The MRM framework should align risk-taking activities to strategic objectives and risk appetite

Principle 1.3: Use of Models

Models should be appropriate for their business purposes

Principle 2.1: Model Identification

Institutions should identify and track all models in use or recently decommissioned

Principle 2.2: Model Risk Rating

Institutions should establish a model risk rating approach that assesses key dimensions of model risk

Principle 2.3: Risk Management Intensity

The scope, scale, and intensity of MRM should be commensurate with the risk introduced by the model

Principle 3.1: Policies, Procedures, and Controls

MRM policies, procedures, and controls should be robust, flexible, and lead to effective requirements applied across the model lifecycle

## Appendix B: Risk Rating Levels

Low: Minimal governance requirements (Score: 0-25)

Medium: Standard governance requirements (Score: 26-50)

High: Enhanced governance requirements (Score: 51-75)

Critical: Maximum governance requirements (Score: 76-100)

# 12. Disclaimer and Limitations

This OSFI E-23 model risk assessment is based on available project information and automated analysis. Final compliance with OSFI Guideline E-23 requires comprehensive stakeholder input, independent validation, and appropriate governance oversight. This assessment should be reviewed and validated by qualified model risk management professionals before making final risk management decisions.