Summary of Literature Review – Papers doc

1. Revolutionizing Risk: The Role of Artificial Intelligence in Financial Risk Management

Summary:
AI is transforming global financial risk management by integrating machine learning (ML), neural networks, and natural language processing (NLP) into risk infrastructures of financial institutions. Major applications are in predictive analytics, anomaly detection, real-time decisioning, and automated risk scoring—moving beyond traditional rule-based systems.

Actionable Insights:

- Shift to continuous, AI-enabled risk monitoring for better speed and precision.

- Hybrid models (AI + expert oversight) deliver accuracy and regulatory compliance.

- Invest in model interpretability tools; critical for regulators and stakeholders.

- Tailor AI deployment to regional infrastructure and regulatory readiness.

- Proactively address ethical and governance frameworks alongside AI adoption.

2. Large-scale Data-driven Financial Risk Management Using ML Strategies

Summary:
Uses big data and advanced ML algorithms (XGBoost, K-NN, Logistic Regression) to design early warning systems and platforms for proactive financial risk handling, especially loan defaults.

Actionable Insights:

- Clustering plus ML (esp. XGBoost) greatly boosts predictive accuracy.

- Employ big data analytics for granular, robust risk prediction and prevention.

- Implement Value-at-Risk frameworks within ML models for real-time portfolio risk control.

- Explore IoT integration for live, real-time data capture and risk management.

3. AI-Driven Predictive Analytics for Financial Risk Management and Financial Risk Prevention

Summary:
Demonstrates how AI models (decision trees, neural networks, ensemble methods, RL) lend speed, accuracy, and strategic agility to risk prediction, fraud detection, and portfolio analysis versus rule-based old approaches.

Actionable Insights:

- Use AI and ML for proactive risk identification—less reactive analysis.

- Match AI branch to area—supervised learning for credit risk, anomaly detection for fraud, RL for portfolio optimization.

- Prioritize data quality, explainability, compliance in AI model deployment.

- Automate routine risk tasks to focus human expertise on higher-value decisions.

4. Cost-Sensitive Classification & Bandit Algorithms for Credit Risk and Loan Approval

Summary:
Introduces cost-sensitive classification and bandit reinforcement learning algorithms to maximize long-term business reward, not just accuracy, for loan approvals—using instance-dependent cost matrices and exploration strategies.

Actionable Insights:

- Design credit/fraud models with instance-wise cost matrices for true business impact.

- Integrate cost-sensitive passive-aggressive and bandit RL algorithms (Thompson Sampling) for best reward outcomes.

- Online, active learning with exploration is key—avoid bias from only observed data.

- Tune soft-margin and regularization frequently; always update models with new outcomes.

General Implementation Tips from all papers:

- Use real-time, adaptive ML frameworks for all risk domains.

- Always include cost or business impact in model evaluation.

- Continuously invest in model governance, interpretability, and compliance tools.

- Combine automation and expert validation for robust, actionable risk management.