Home Credit Default Risk
Final Model Evaluation Report

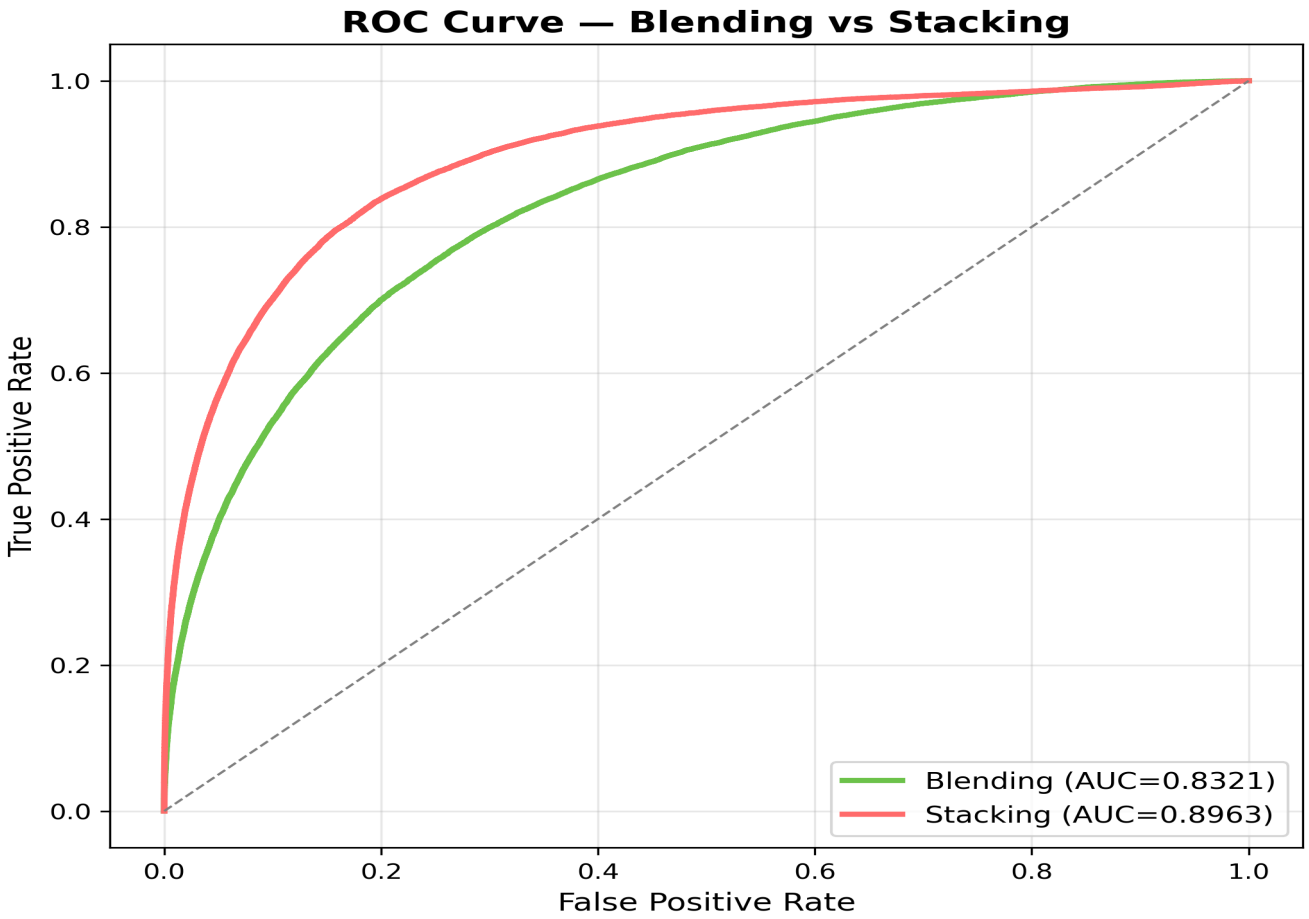
Performance Summary

Model	AUC Score	KS Score
CatBoost	0.825881	—
LightGBM	0.789915	—
XGBoost	0.848976	—
Blending	0.832141	0.503357
Stacking	0.896271	0.639468

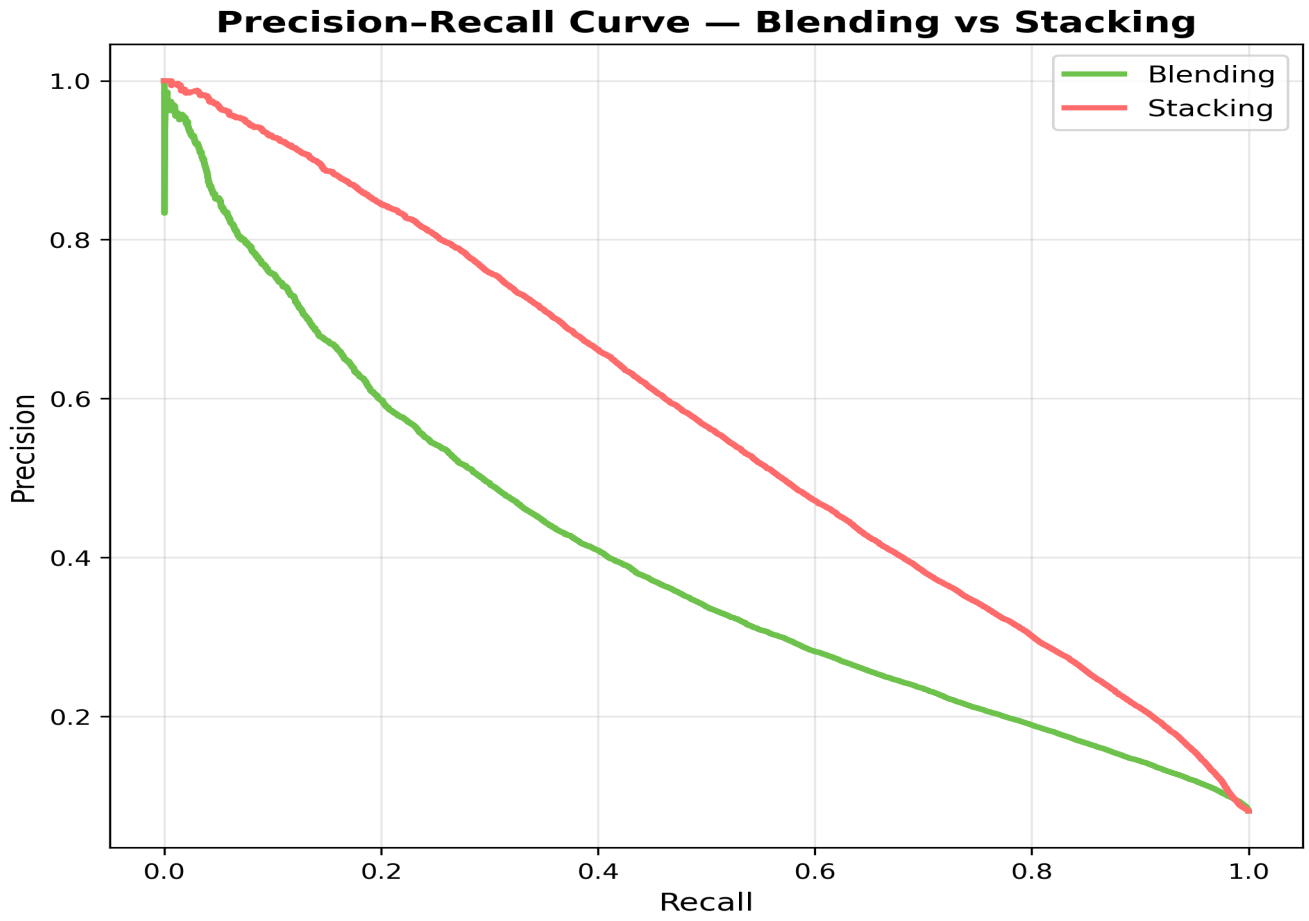
Key Findings

• **Best Individual Model:** XGBoost with AUC = 0.8490
• **Blending Ensemble:** AUC = 0.8321, KS = 0.5034 (weights: Cat=0.4, LGB=0.25, XGB=0.35)
• **Stacking Meta-Model:** AUC = 0.8963, KS = 0.6395 **(BEST PERFORMANCE)**
• Stacking improves over blending by 6.41% in AUC
• Stacking improves over best individual model by 10.64% in AUC

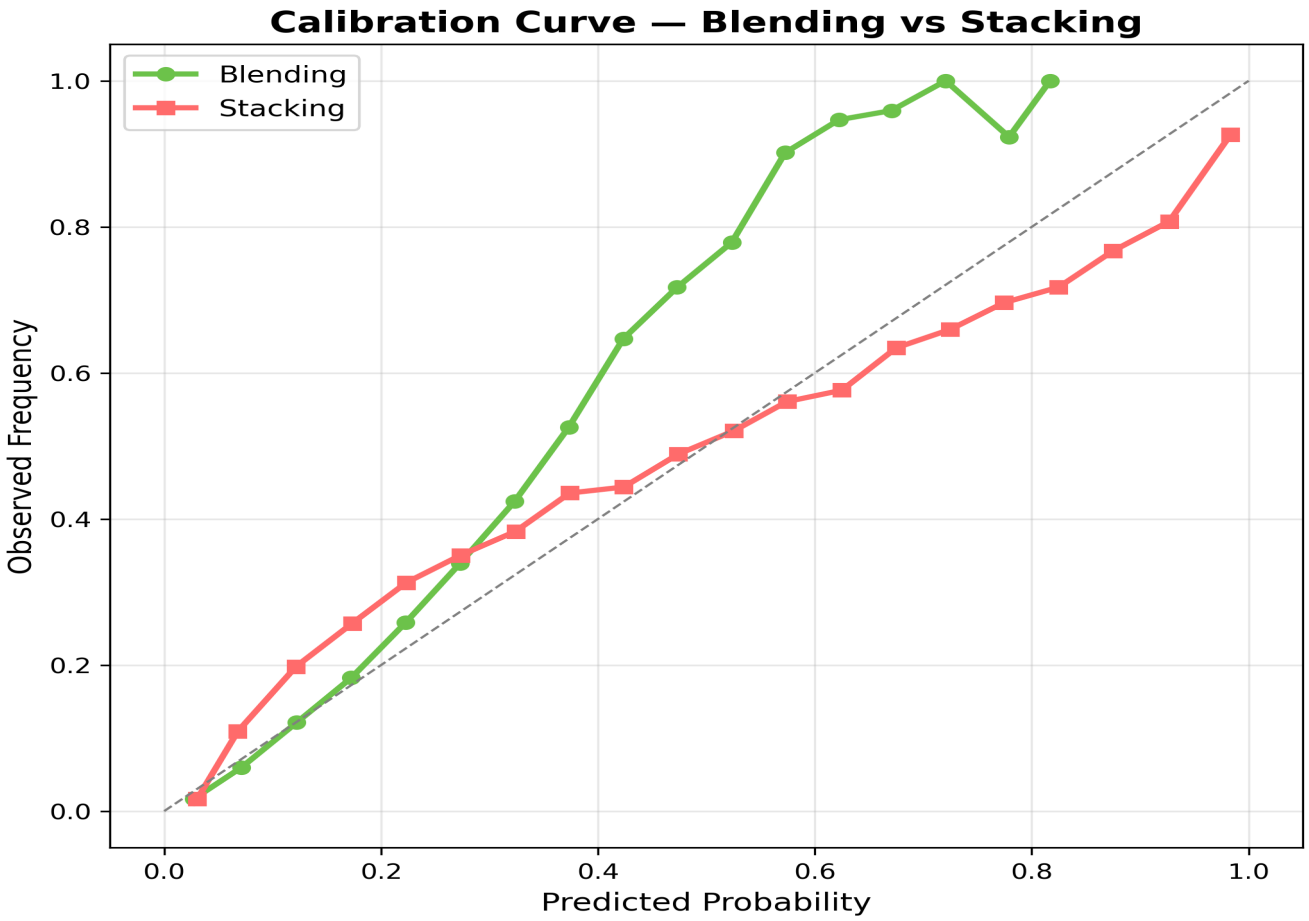
ROC Curve Comparison



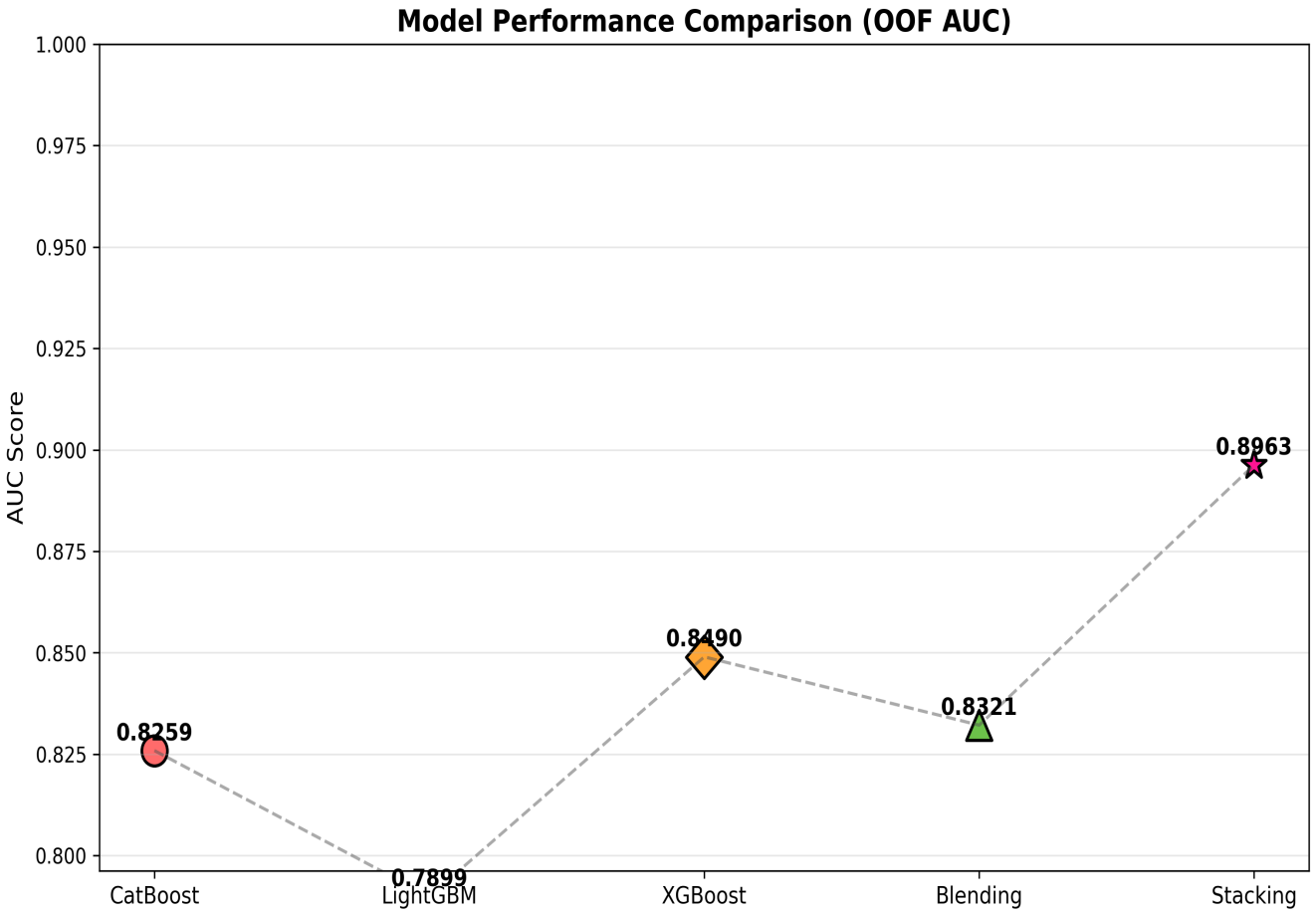
Precision–Recall Curve Comparison



Calibration Curve Comparison



Model Performance Comparison



Conclusion

The stacking ensemble achieved the best performance with an OOF AUC of **0.896271**, outperforming individual models and the blending ensemble. The stacking meta-model (Logistic Regression) effectively learned the optimal combination of the three base learners (CatBoost, LightGBM, XGBoost), resulting in superior predictive performance on the Home Credit Default Risk dataset.

The final submission has been generated from the stacking model predictions.