Applicability of Artificial Intelligence in Bank Risk Management

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Introduction

A **commercial bank**, as a subject of monetary circulation, must have an **internal control system**.

This system is independent of the business units and consists of the following basic **departments**:
- Risk Management Service;
- Internal Control Service;
- Internal Audit Service;
- Information Security Service;
- Anti-Money Laundering Service.

The **main task** of the **Risk Management Service** is to analyze and evaluate the levels of risks accepted by the bank due to effective risk management.

Table 1. Main Types of Risks and Their Key Features

Types of Risks	Risk Assessment Tasks	Sources of Information
Credit risk	*analysis* of the financial condition of the bank's debtors	all available information about the debtor
Market risk	*estimation* of losses from changes in market asset prices	market quotes, official exchange rates
Operational risk	*assessment* of flaws in internal procedures and external threats	large amount of internal and external information
Interest rate risk	*assessment* of losses from changes in interest rates in the market	internal and external data on interest rates
Liquidity risk	*assessment* of the bank's ability to meet its obligations in a timely manner	data on the terms and amounts of incoming money and payments
Concentration risk	*assessment* of exposure to large amounts of credit risk or liquidity risk	data on the concentration of credit risk and liquidity risk

Artificial Intelligence (AI) Tasks in Risk Management

1) **data analysis** to identify the patterns;
2) **data forecasting** for stress testing;
3) **pattern recognition** to accelerate processing of unrelated information

Applicability of Artificial Intelligence (AI)

1) *setting* parameters or *validating* models in the internal ratings-based approach;
2) *searching* for necessary, relevant or key information both in the internal and external environments;
3) *setting* signal values and *calculating* and *justifying* their levels;
4) *searching* for business process vulnerabilities, i.e. operational risk;
5) *preparing* daily reports on essential information;
6) *conducting* a self-assessment of the risk management system;
7) *finding* effective solutions for risk management, e. g. setting capital limits, and recovery from the crisis

Рис ... Название рисунка 1

Conclusion

The **use of artificial intelligence in the banking sector** is currently *limited* to chatbots and processing of applications from borrowers, however, in the *future*, this technology can be successfully used in the **field of risk management**.