Below is a concise summary of two research papers related to financial risk detection, particularly in credit card fraud detection.

**"The self-organizing map" (1990)**

SOM is an unsupervised artificial neural network that maps high-dimensional data to a lower-dimensional space, helping to uncover the intrinsic structure and patterns in the data. In the finance industry, SOM can be used for anomaly detection by identifying abnormal data points or behavior patterns through self-organization. Its main advantage is the ability to handle complex, high-dimensional financial data and automatically discover underlying correlations, making it well-suited for detecting anomalies that are not easily detected.

**"Support Vector Method for Novelty Detection" (1999)**

**One-Class SVM** is an unsupervised machine learning algorithm designed to detect anomalies by learning the distribution of normal data points. It creates a decision boundary that encapsulates the normal data and classifies any new data points falling outside this boundary as anomalies. In the finance industry, One-Class SVM can be used for fraud detection, identifying unusual transactions or patterns that deviate from the typical behavior of legitimate transactions. Its main advantage is that it can work with unlabeled data, making it especially useful when only normal data is available for training, and it is well-suited for detecting outliers or fraud patterns that are subtle and not easily identified through traditional methods.

<https://ieeexplore.ieee.org/abstract/document/58325>

https://proceedings.neurips.cc/paper/1999/hash/8725fb777f25776ffa9076e44fcfd776-Abstract.html