Text of this thesis is divided into five main parts. In opening part we put mind to credit risk and credit process, describing various bank clients. There are trends in loans development by client sectors underlined. In second part there is a survey of mathematical models which are widely used in real life for client creditworthiness analysis. In next part you can find a detailed description of theory for logistic regression model and for new developed random walk model resulting from commercial KMV model. Suitting of random walk model to predicting default of retail clients on their overdrafts is mentioned. The fourth part begins with description of data used. Then the numeric work for both mentioned models is focused, using results of logistic regression model as performance measure of new random walk model. The conclusion pays to draw out some possible future improvements of new model.