The volume and availability of business and finance data may continue to increase in the near future. However, the utility of such data is by no means straightforward due to a lack of integration between data-driven techniques and usual decision-making processes. This paper aims to integrate data with multiobjective decision-making in cash management by means of machine learning. To this end, we first consider cash flow forecasting as a data-driven procedure to be used as a key input to multiobjective cash management problem in which both cost and risk are goals to minimize. Next, we compute the forecasting premium, namely, how much value can be achieved in exchange of predictive accuracy. Finally, we provide cash managers with a general methodology to improve decision-making in cash management through the use of data and machine learning techniques. This methodology is based on a novel closed-loop procedure in which the estimated forecasting premium (if any) is used as a critical feedback information to find better forecasting models and, ultimately, better cost-risk results in cash management.