

## ABSTRACT

OPTIMUM PORTFOLIO OF  
"SOGO (SYNTHETIC) BANK ACCOUNT"

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U.S. has undergone innovations in financial instruments such as money market fund, money market certificate, cash management account, etc. The same sort of forces for change, though less turbulent in nature, has begun to pervade the financial system of Japan. An important key to the innovation is provided by the "Sogo Account" for personal use which was adapted by Japanese banks in 1972. The "Sogo Account" is a combination of a time deposit account, an ordinary account, and an overdraft contract. Prearranged automatic payments (e.g., utility charges) are automatically debited to the customer's ordinary account. Overdrafts are permitted up to 90 percent of the amount in the customer's time deposit, which serves as collateral (see [2, p.45]). The "Sogo Account" is available in most of the financial institutions of Japan, such as city banks, local banks, trust banks, mutual loan and savings banks, credit associations, postal offices, agricultural cooperatives, credit co-operatives, and labor credit associations.

In the case of banks, an optimum management on the part of the customer of the "Sogo Account" is shown to take a typical form of the concave programming problem. The optimum management in the case of postal savings is shown to reduce to a non-convex piecewise-linear programming problem. Optimality conditions and algorithms are provided. The algorithm for the non-convex problem is constructed with recourse to a recursive formula for searching a set of conceivable linear segments. Some optimum rule of thumb for daily use is also provided.