Computing debt cuts leading to global zero-equity

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Abstract

In this paper we present a method for computing a set of loan cuts, which, once applied, lead to a global zero-equity state, i.e., each and every party in the financial network may forget all liabilities.

1 Basic definitions

Before we proceed to defining the structures needed in discussing the method, we have to impose some definitions: by $\mathfrak{R}_?$, we denote the set of real numbers x such that $x \,?\, 0$ holds. We work on a dynamic graph $G = (V, A)$, $A \subset V \times V$, for which we define a weight function $w_G \colon V^2 \to \mathcal{P}(\mathfrak{R}_> \times \mathfrak{R}_\geq \times \mathfrak{R}_> \times \mathfrak{R})$