Working Papers on Economics - A Multi-Layer Network Of the Sovereign Securities Market

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We study the network of Colombian sovereign securities settlements. With data from the settlement market infrastructure we study financial institutions' transactions from three different trading and registering individual networks that we combine into a multi-layer network. Examining this network of networks enables us to confirm that (i) studying isolated single-layer trading and registering networks yields a misleading perspective on the relations between and risks induced by participating financial institutions; (ii) a multi-layer approach produces a connective structure consistent with most real-world networks (e.g. sparse, inhomogeneous, and clustered); and (iii) the multi-layer network is a multiplex that preserves the main connective features of its constituent layers due to positively correlated multiplexity. The results highlight the importance of mapping and understanding how financial institutions relate to each other across multiple financial environments, and the value of financial market infrastructures as sources of data that may help to overcome the main obstacles for working on multi-layer financial networks.

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