## Intangible Assets and Firms' Liquidity Holdings: Evidence from Japan<sup>1</sup>

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## Abstract

It has been an important open question why firms hold seemingly "excess" liquidity (e.g., cash). Using Japanese firm-level large panel data accounting for 40,000 firms over the period 2000-2013, first, we find a positive correlation between firms' liquidity holding as measured by the ratio of liquidity assets to total assets and the ratio of intangible to tangible assets held by the firms. This result is consistent with the empirical implication of our theoretical model based on collateral constraints for borrowing, and suggests that the increasing importance of nonpledgeable intangible assets in firms' production process partly explains firms' liquidity holding. Second, we also find that such positive correlation is stronger for the firms in industries associated with higher complementarity between tangible and intangible assets. This result suggests that the firms' liquidity holding reflects the technological heterogeneity among industries.

Keywords: Liquidity holding, Intangible assets, Complementarity, Substitutability

JEL classification: E22, E44, G31

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