What is the relationship between asset liquidity and capital structure in each business life cycle stages?

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Background

The impact of the asset liquidity on capital structure has been a long contentious issue in corporate finance field. The relationship between the asset liquidity and capital structure has not been concluded yet. Previous studies are mainly focused on modeling and testing hypothesis within particular spatial, industry-sectional and firm type constraints, but not in the aspect of firm-life cycle stages. To extent existing studies, I study on the relationship between asset liquidity and capital structure in business life cycle stages.

Specific Aim

Study in the aspect of firm business life cycle stages.

- Add empirical results to the existing results in different view.

Step forward to use more discrete life cycle stages in research.

- Provide their life cycle index in details.

Hypothesis

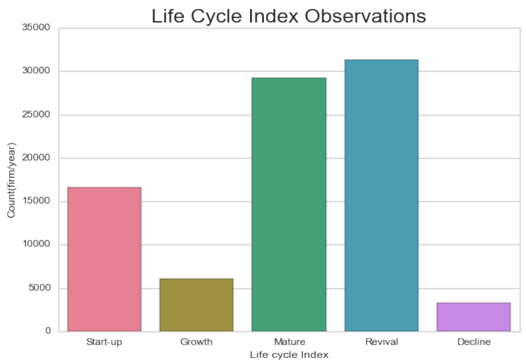
The positive relationship exists between asset liquidity and capital structure and the relationship is stronger in the start-up stage than the decline stage of firm's life cycle stage.

Data

- COMPUSTAT Capital IQ North America Fundamentals Annually Financial Data
- Annual Full Coverage during the period 1995 to 2017, March with all active companies in U.S.
- Total 136,495 observations and 813 variables including all information of financial statement and cash flow statement.

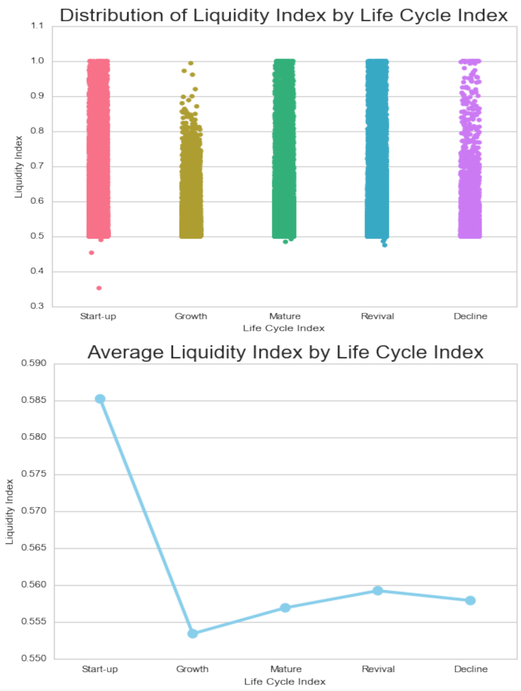
Measure of Life Cycle Index

- Classify all firm-year observation into five Life Cycle Index using Life cycle variables; (1) Dividend payout , (2) Sales growth , (3) Capital expenditure rate and (4) Firm age.
- By industry level, assigned into 4 quartile scale and groups and given a composite score.
- The 86,523 firm-year observations after removed outliers are classified :
  - Start-up : 16,619 firm/year observations (3,719 firms)
  - Growth : 6,046 firm/year observations (2,146 firms)
  - Mature : 29,251 firm/year observations (5,059 firms)
  - Revival : 31,313 firm/year observations (4,139 firms)
  - Decline : 3,294 firm/year observations (1,086 firms)



Measure of Liquidity Index

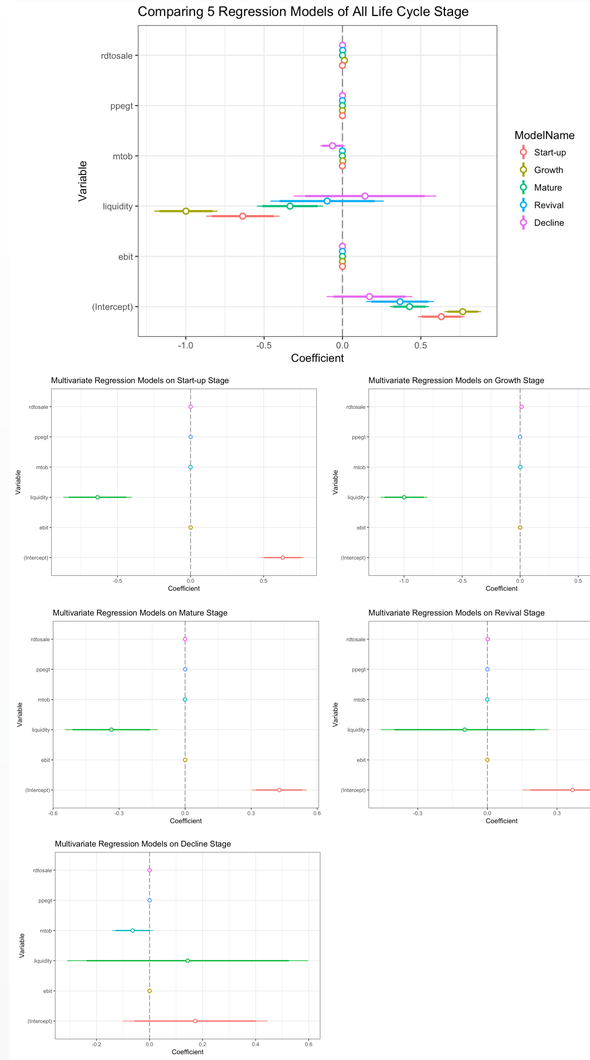
- Weighted by the importance of asset class in total asset of the firm.
- Firm-level weighted measures of total asset liquidity.
- Weighted asset liquidity index $=$ $\left[\left(\frac{Cash\ \&\ Equiv}{Total\ Asset}\right) - 0.5\left(\frac{Noncash\ Current\ Asset}{Total\ Asset}\right)\right]$



Model

- Multivariate regression analysis of the level of leverage on the liquidity index and control variables such as R&D rate, Capital Expenditure Rate, Market to Book ratio, PPE and EBIT.
- $Leverage = \alpha + \beta_1 Liquidity + \beta_2 R\&DtoSale + \beta_3 Markettobook + \beta_4 PPE + \beta_5 EBIT$

Estimated Model Coefficient



Conclusions

The relationship between asset liquidity and capital structure is negative in start-up stage through revival stage and only positive in decline stage. This is against the hypothesis and as life cycle stage changes from mature to decline, the negative relationship becomes weak.