

# Liquidity Adjusted Capital Asset Pricing Model Using Amortized Liquidation Cost as Liquidity Measure

**Erna Garnia, Rachmat Sudarsono, Dian Masyita, and Ina Primiana**

Padjadjaran University  
Jalan Dipatiukur 35, Bandung, 40132, Indonesia  
[ernagarnia@gmail.com](mailto:ernagarnia@gmail.com)

## Abstract

This paper shows that the proper liquidity measure in liquidity adjusted capital asset pricing model (LCAPM) is amortized liquidation cost. The amortized liquidation cost is defined as liquidation cost times the turnover. In this paper, bid-ask spread, Amihud factor, and price change are used and compared as liquidation proxies. It is shown here that by using amortized liquidation costs, the liquidity is significantly priced and robust compared to nonamortized ones. Data from Indonesia Stock Exchanges is used to verify the proposed concept. Empirical results show that the amortized price change results in more significant effect compared to amortized bid-ask spread and amortized Amihud factor.

Keywords: Amortized, liquidity, Asset Pricing

JEL Classification: G11, G12

## 1. Introduction

Frictionless is one of the assumption in standard capital asset pricing model (SCAPM). Frictionless means that an asset can be immediately traded without cost at all. Thus, liquidity is assumed as infinite in SCAPM. Several works have shown that illiquidity is priced and should be taken into account in asset pricing. For example, Amihud and Mendelson (1986) have shown that liquidation cost that is measured by bid-ask spread has positive impact on the excess return. The effect of bid-ask spread, however, was criticized by Eleswarapu and Reinganum (1993) by showing that the effect of bid-ask spread is seasonal. By using Kyle factor, Brennan and Subrahmanyam (1996) have shown that the effect of liquidation cost on the return is also positive. The effect of bid-ask spread, however, is negative. By using proportion of zero return days as the proxy of liquidation cost, Lesmond et al. (1999) have shown that the effect of liquidation cost is positive and very significant on the return especially in emerging markets. Jacoby et al. (2000) show theoretically that the effect of bid-ask spread on the return is convex instead of concave as the one found by Amihud and Mendelson (1986). In 2002, Amihud proposed the ratio of daily price change to dollar volume as a proxy for liquidation cost (also called as Amihud factor) and he has shown that the effect on the return is positive. Marshall and Young (2003) found that the effect of bid-ask spread on the return is not significant. Recent work by Vu et al. (2015), however, shows that the effect of liquidity on the return is proxy dependent. Thus, the effect of liquidity on the return is still inconclusive and open for further researches.

Liquidity adjusted capital asset pricing model (LCAPM) can be considered as an extension of SCAPM by taking into account the liquidation cost as it is formulated by Acharya and Pedersen (2005). In the model, both stock and market excess returns are in the amortized form. Thus, the liquidation costs that are used in the model must also in the amortized form. In order to obtain the