

FIN 411 -- Investments: Anomalies & Liquidity

Anomalies (relative to the CAPM):

(1) small cap firms have higher average returns than predicted by the CAPM (i.e., risk-adjusted)

(2) high E/P (low P/E) stocks have higher average returns than predicted by the CAPM (i.e., risk-adjusted)

Anomalies (relative to the CAPM): Small Firm Effect

(1) Banz (JFE, 1981) finds it in monthly data dating back to 1926

(2) Reinganum (JFE, 1981) finds it in daily data

- ▶ **the effect is strongest for the first 10 days of January (tax-loss-selling?)**
- ▶ **it interacts with the E/P effect (i.e., neither dominates the other)**

It is hard to understand why firm size should affect expected returns

Anomalies (relative to the CAPM): E/P Effect

Simple valuation model with constant growth of future cash flows (earnings):

$$P(t) = E(t) / [R - g]$$

where $P(t)$ and $E(t)$ are the current stock price & earnings (cash flow), R is the risk-adjusted discount rate, and g is the growth rate of future cash flows, implies:

$$E(t)/P(t) = [R - g]$$

so E/P is high if expected returns are high relative to future growth rates of cash flows

- E/P ratios provide an alternative model for expected returns

Liquidity and Asset Pricing: Amihud & Mendelson (JFE, 1986)

(1) Investors are only concerned about end of period wealth

- some assets have higher transaction costs (lower liquidity)
- so gross returns will have to increase to yield equal net returns to investors

(2) Investors who have longer expected holding periods can afford to hold assets with higher transaction costs (because you only pay them when you trade)

- they are the clientele for these assets

Liquidity and Asset Prices: Effects on Gross Returns

A&M use bid-ask spreads to proxy for illiquidity

- ▶ **higher spreads increase gross returns, but at a decreasing rate**
 - ▶ **because you are less likely to trade high spread stocks in a given time period**
 - ▶ **so the average per period transaction cost increases by less than the spread**

- ▶ **Fig. 1, p. 474**

Liquidity and Asset Prices: A&M Table 2 (p. 478)

A&M use bid-ask spreads for NYSE stocks from 1960-79 to explain average rates of return to NYSE stocks (in addition to beta):

- ▶ **Table 2 shows avg returns, spreads & betas for 49 portfolios -- 7 groups of spreads & 7 groups of risk**
- ▶ **spreads vary from .5% to 3.2% -- avg returns vary from .35% to 1%**
- ▶ **betas vary from .61 to 1.27-- avg returns vary from .34% to .95%**
- ▶ **it looks like spread is about as important as beta**

Liquidity, Size & Beta: A&M (p. 487)

A&M estimate a regression that includes beta $\beta(p)$, spread $S(p)$ and (the log of) size, with t-stats in parentheses under the coefficients:

$$R(p) = .0082 + .006 \beta(p) + .158 S(p) + .0006 \ln[\text{SIZE}(p)] + \dots$$

(5.05)
(3.44)

(1.56)

- ▶ spread and beta are important, but not size

Liquidity, Size & Beta: Summary

(1) Liquidity is another important dimension of asset pricing. Remember, these are all NYSE-listed stocks, so even the most illiquid has much lower transaction costs than many other assets

- ▶ (e.g., commercial real estate, venture capital, etc.)

(2) Small cap stocks have less liquidity than large cap stocks, on average, which is why their expected (gross) returns are higher

- ▶ prices of these assets are lower than if they had more liquidity -- no profit opportunity

Liquidity, Size & Beta: Questions

- (1) If you were the CFO of your firm, what could you do to increase the liquidity of your firm's stock?**
- (2) What do you think would happen to the stock price if liquidity is increased?**
- (3) What makes bid-ask spreads larger for some assets than others?**

Liquidity, Size & Beta: Questions

- (4) Which of these factors is under the control of the owners/managers of the asset/firm?**
- (5) What types of investors are most likely to have a higher tolerance for illiquidity (i.e., which investors are likely to be in that clientele?)**