
Discussion of
**The Shorting Premium and Asset Pricing
Anomalies**

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Discussion of The Shorting Premium

Overview

- Key findings
 - “Shorting premium”: substantial net-of-fee returns earned for shorting high lending fee stocks.
 - Anomalies are stronger among high lending fee stocks
 - Cheap-minus-expensive-to-short (CME) factor captures anomaly returns: Proxy for wealth portfolio (SDF) of short-sellers?
- Contribution
 - Compared with earlier studies using lending fees (e.g., Cohen et al. 2007): Much more extensive data coverage
 - Compared with earlier studies intersecting anomaly portfolios with loan supply proxies (Nagel 2005): Lending fee data

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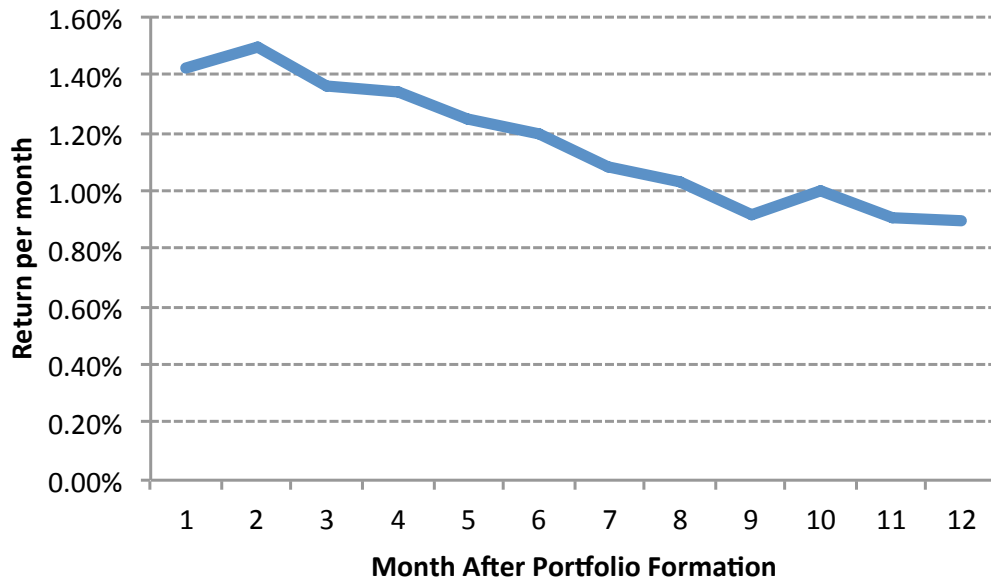
Discussion of The Shorting Premium

- ① Interpretation of “shorting premium”: Expected returns conditional on private or public information?
- ② Should anomalies really be stronger among high lending fee stocks?
- ③ CME factor as proxy for short-seller wealth portfolio return: Should proxy be constructed differently?

Comment 1: Does lending fee reflect private information of short sellers?

- Portfolios formed based on lending fee at the end of prior month
 - Lending fee level is not public information
- In tests with long sample and short interest/institutional ownership ratio
 - Short interest level and institutional ownership not publicly known until later in month/quarter
- Concern: Does “shorting premium” reflect **private** information of short sellers or mispricing conditional on **public** information?
- Check: Are high returns of high lending fee stocks concentrated in first month after portfolio formation?
 - Test useful to extent that private information is unlikely to be long-term information

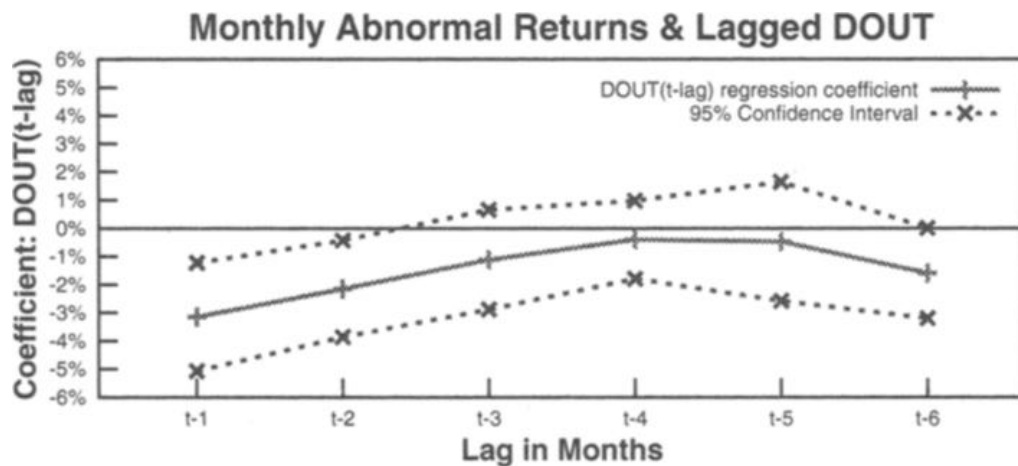
CME factor returns beyond the first holding period month



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Comparison: Stocks with increase in loan quantity and loan fee (DOUT) in Cohen et al. (2007)



Cohen, Diether, and Malloy (2007)

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Comment 2: Should anomalies be stronger among high lending fee stocks?

- Single stock, zero net supply, fundamental value F
- Sentiment investor demand x
- Arbitrageur demand (short sellers and non-short sellers)

$$y = \beta^s \min[\beta^s(F - P + \tau), 0] + \beta^n \max[(F - P), 0]$$

with stock lending fee τ .

- Stock loan demand follows as

$$L^d = -\beta^s \min[(F - P + \tau), 0]$$

- Stock loan supply

$$L^s = \ell\tau$$

Equilibrium price and loan fee

- Assume $\beta^n \approx \infty$, but finite β^s , i.e., limited risk-bearing capacity of short sellers
- Market clearing in stock and stock lending market pins down τ and P
- Equilibrium mispricing

$$P - F = \begin{cases} \left(\frac{1}{\beta} + \frac{1}{\ell}\right)x & \text{if } x > 0 \\ 0 & \text{if } x \leq 0, \end{cases}$$

- Equilibrium lending fee

$$\tau = \begin{cases} \frac{x}{\ell} & \text{if } x > 0 \\ 0 & \text{if } x \leq 0, \end{cases}$$

Implication 1: Measuring the “shorting premium”

- Now apply to cross-section of stocks $i = 1, \dots, N$, with cross-sectional variation in ℓ_i and x_i
- Focusing on mispriced stocks and noting that $\tau_i = x_i/\ell_i$,

$$P_i - F_i = \left(1 + \frac{\ell_i}{\beta^s}\right) \tau_i$$

- Roughly supports “shorting premium” analysis: Sort on τ_i generates spread in $P_i - F_i$
- But double-sort on τ_i and (proxy for) ℓ_i would be cleaner: $\frac{\ell_i}{\beta}$ reflects limited risk-bearing capacity of short sellers
 - High ℓ for a given fixed $\tau \Rightarrow x$ must be high \Rightarrow Short-sellers’ position is bigger \Rightarrow short sellers demand higher risk premium

Implication 2: Identifying stocks with strong anomalies

- Not clear that focusing on anomalies **within** high lending-fee segment makes sense
- Within the model

$$P_i - F_i = \left(\frac{1}{\beta} + \frac{1}{\ell_i}\right) x_i$$
$$\tau_i = \frac{1}{\ell} x_i$$

- If a stock characteristic proxies for x_i so does the lending fee!
- If lending fee measures x_i without error, but stock characteristics measures x_i with error, then sort within high lending-fee segment is a sort on **measurement noise**
- What if lending fee is measured x_i with error, too?

Implication 2: Identifying stocks with strong anomalies

- With (Gaussian) measurement error
 - Characteristic $\tilde{x}_i = x_i + \varepsilon$
 - Lending fee $\tilde{\tau}_i = \tau_i + \eta$
- Optimal prediction: Combine \tilde{x}_i and $\tilde{\tau}_i$

$$E[P_i - F_i | \tilde{x}_i, \tilde{\tau}_i] = \left(\frac{1}{\beta} + \frac{1}{\ell_i} \right) \left(\frac{\sigma_\eta^2}{\sigma_\varepsilon^2 + \sigma_\eta^2} \tilde{x}_i + \frac{\sigma_\varepsilon^2}{\sigma_\varepsilon^2 + \sigma_\eta^2} \tilde{\tau}_i \right)$$

- Therefore: Instead of
 (high \tilde{x} , high τ) - (low \tilde{x} , high τ),
 look at
 (high \tilde{x} , high τ) - (low \tilde{x} , low τ)
- Or, even better,
 (high \tilde{x} , high τ) - (low \tilde{x} , low τ) within low ℓ_i stocks
 - Institutional ownership as proxy for ℓ_i (Nagel 2005)?

Implication 2: Identifying stocks with strong anomalies, applied to momentum

- Sample period: 1992 - 2002
- Corner portfolios from independent quintile sorts on %inst. own. (IO), %short interest (SI), past 6-month return
- Value-weighted returns, bottom 20 percent by size dropped
- High lending fee \approx Low IO & high SI

	Low Short Interest		High Short Interest	
	L	W	L	W
Low Inst. Own.	0.73	1.85	-1.69	0.57
High Inst. Own.	0.24	1.76	0.32	1.80

- WML among high lending fee stocks \approx 2.24%

Implication 2: Identifying stocks with strong anomalies, applied to momentum

- Using both SI and W/L as mispricing signal, focused on low loan supply (=low IO) stocks

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- (Low SI, low IO, Winners) - (High SI, low IO, Losers) \approx 3.54%

Comment 3: CME factor as shorting-risk factor

- Idea: Price stocks based on short-sellers' first-order condition: expected returns should line up with covariance with short-seller wealth portfolio \Rightarrow shorting-risk factor
- Paper uses CME portfolio as proxy: "A systematic risk for this arbitrageur is the covariance of a stock's return with the return on the **expensive-to-short** stock portfolio."
- But: short-seller portfolio is not composed only of expensive-to-short stocks but of stocks with high **short interest**
 - Example: Stock with tiny loan supply can have negligible share in short-seller portfolio but high lending fee
- Further: Not clear why SMB, HML, and MOM should be included along with short-seller wealth portfolio proxy

- Results provide further support for view that anomalies are viewed as “exploitable” by short sellers
 - Abnormal relative to pervasive market-wide risk factors
 - Perhaps not abnormal from viewpoint of short-seller’s Euler equation
 - Weak in stock market segments where short selling is cheap
- Potential improvements
 - Distinguish from private information stories
 - Focus on anomalies **within** set of high lending-fee stocks not well motivated
 - Short-seller wealth portfolio = high short interest stocks, not high lending fee stocks