

Discussion of:
Anomalies and their Short-Sale Costs
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SFS Cavalcade
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Basic Idea

- Motivating Question:
 - *Can borrow costs explain anomaly returns?*
- Discussion Outline:
 - Some background on the mechanics of short-selling
 - Recent changes in the stock lending market.
 - Empirical analysis
 - Differences with findings of Drechsler and Drechsler (2014), Geczy, Musto, and Reed (2002), and Engelberg, Evans, Leonard, Reed, and Ringgenberg (2022).
 - Interpretation & Suggestions

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Short selling

- To take a short position in a US common stock, you must first borrow that stock.
- In the US all shares held in *margin accounts* are held in *street name*, and can be lent by the brokerage firm for the purpose of short selling.
 - All loans are overnight, but are almost always easily renewed.
 - Shares lent can be rehypothecated.
- Shares held in *non-margin* accounts are not available for lending.
- Institutional Investors generally lend out their shares.
 - This means that a combination of Short Interest and Institutional Ownership is generally a good indicator of whether a stock will be special (e.g., SIRIO in Drechsler and Drechsler, 2014)

What determines borrow costs?

- As of a few days ago, the fee for borrowing most shares of stock was **25 bps/year**.
- However, as with most markets, if demand exceeds supply at this minimum fee, the fee rises until supply equals demand.
 - Mechanically, instead of receiving interest on short-sale proceeds at the standard rebate rate, you receive the standard rate minus the fee.
- Historically, $\sim 1\text{-}2\%$ of stocks had significant borrow fees (D'Avolio, 2002)
 - In the last several decades, the picture has changed significantly.

What determines borrow costs? *Largest fees—IBKR*

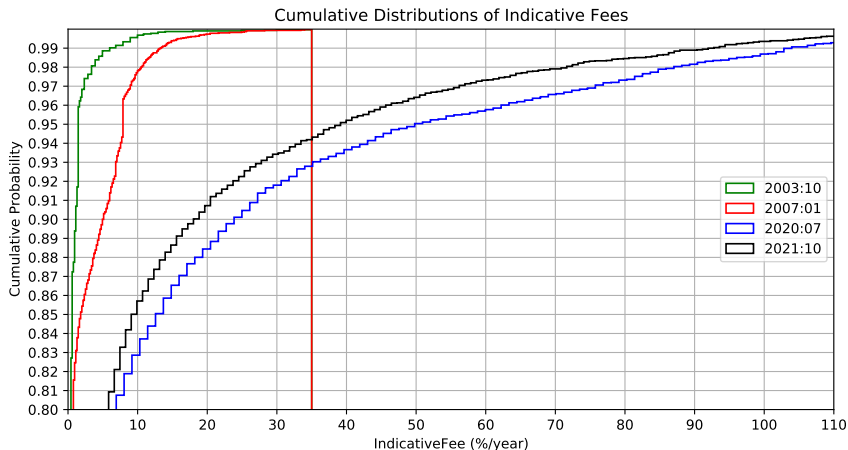
date	tick	name	con	isin	rebate	fee	avail
2023-05-23 17:45:03	ALPS	ALPINE SUMMIT ENERGY PARTNER	544348221	CA0210091058	-1036.9375	1041.9975	40000
2023-05-23 17:45:03	EVOK	EVOKE PHARMA INC	563547906	XXXXXXXXG2030	-992.8679	997.9279	70000
2023-05-23 17:45:03	SVRE	SAVERONE 2014 LTD -ADR	555926919	XXXXXXXXT1051	-955.0854	960.1454	5000
2023-05-23 17:45:03	LEO	BNY MELLON STRATEGIC MUNI	367504875	XXXXXXXXW1080	-877.3997	882.4597	100000
2023-05-23 17:45:03	LXEH	LIXIANG EDUCATION HOLDIN-ADR	448082195	XXXXXXXXA1152	-877.3431	882.4031	9000
2023-05-23 17:45:03	OKYO	OKYO PHARMA LTD - ADR	632432458	G000BMFG5F62	-709.6734	714.7334	2000
2023-05-23 17:45:03	EPR PRE	ENTERTAINMENT PROPERTIES TR 9.00% SER E	116841556	XXXXXXU3077	-702.0416	707.1016	90000
2023-05-23 17:45:03	ARR PRC	ARMOUR RESIDENTIAL REIT	401498350	XXXXXXX56068	-679.4331	684.4931	100000
2023-05-23 17:45:03	BFRG	BULLFROG AI HOLDINGS INC	608754324	XXXXXXXE1091	-670.6256	675.6856	70000
2023-05-23 17:45:03	ONCS	ONCOSEC MEDICAL INC	596544437	XXXXXXL4059	-657.0523	662.1123	100000
2023-05-23 17:45:03	YOSH	YOSHIHARU GLOBAL CO-A	584127820	XXXXXXXXY1047	-631.4555	636.5155	40000
2023-05-23 17:45:03	APLM	APOLLOMICS INC	623240474	KYG0411D1079	-621.3364	626.3964	400
2023-05-23 17:45:03	OMH	OHMYHOME LTD	620645220	KYG6538M1078	-602.2851	607.3451	70000
2023-05-23 17:45:03	PKBO	PEAK BIO INC	595176602	XXXXXXXXP1084	-598.8101	603.8701	1000
2023-05-23 17:45:03	GAB PRG	GABELLI EQUITY TRUST	111726724	XXXXXXXXX71765	-582.9640	588.0240	10000
2023-05-23 17:45:03	SFR	APPRECIATE HOLDINGS INC	600664440	XXXXXXXXJ1060	-576.2735	581.3335	25000
2023-05-23 17:45:03	ZURA	ZURA BIO LTD	621514176	KYG9TY5A1016	-571.3705	576.4305	5000
2023-05-23 17:45:03	ZIONL	ZIONS BANCORPORATION	134596601	XXXXXXXX18183	-543.8540	548.9140	25000
2023-05-23 17:45:03	BCAN	BYND CANNASOFT ENTERPRISES	564931628	CA05608P1099	-512.3713	517.4313	20000
2023-05-23 17:45:03	DRMA	DERMATA THERAPEUTICS INC	619275587	XXXXXXX53065	-502.5106	507.5706	500
2023-05-23 17:45:03	WINT	WINDTREE THERAPEUTICS INC	616507111	XXXXXXD4025	-493.3979	498.4579	100000
2023-05-23 17:45:03	LANV	LANVIN GROUP HOLDINGS LTD	602439320	KYG5380J1004	-487.6910	492.7510	300
2023-05-23 17:45:03	AMBI	AMBIPAR EMERGENCY RESPONSE	617462343	KYG025321020	-480.9041	485.9641	400
2023-05-23 17:45:03	CXAI	CXAPP INC	617462335	XXXXXXXB1098	-475.1282	480.1882	10000
2023-05-23 17:45:03	PRST	PRESTO AUTOMATION INC	587227164	XXXXXXXXT1051	-450.5341	455.5941	150000
2023-05-23 17:45:03	SNTG	SENTAGE HOLDINGS INC	578832132	KYG8062B1142	-449.1145	454.1745	20000
2023-05-23 17:45:03	ALLR	ALLARITY THERAPEUTICS INC	622469955	XXXXXXX42039	-444.8598	449.9198	200000
2023-05-23 17:45:03	YGF	YANGFANG INTERNATIONAL GROUP	622250063	KYG9834A1031	-443.9548	449.0148	15000
2023-05-23 17:45:03	SATX	SATIXFY COMMUNICATIONS LTD	593850398	IL0011898850	-442.3445	447.4045	100000
2023-05-23 17:45:03	HSCS	HEART TEST LABORATORIES INC	567376342	XXXXXXXE1047	-440.1803	445.2403	40000

- Units for rebate and fee are %/yr; fee+rebate= 506 bps/yr.

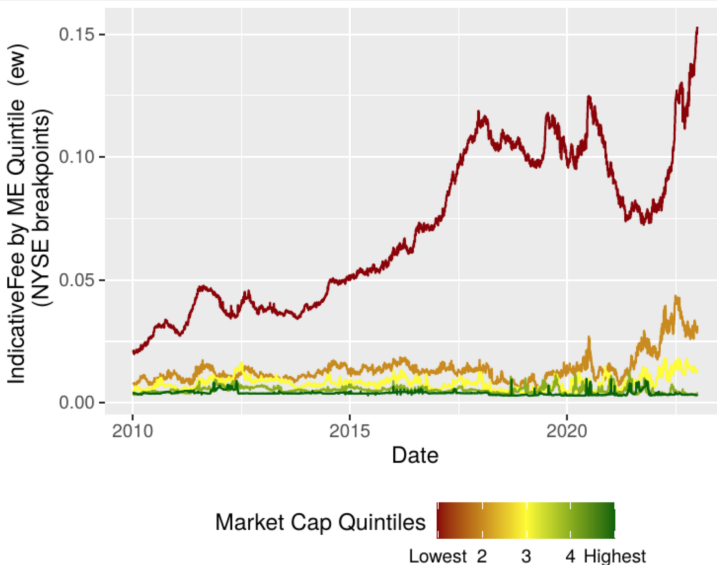
The evolution of borrow costs

CDFs of *Markit* Indicative Fees for US common stocks

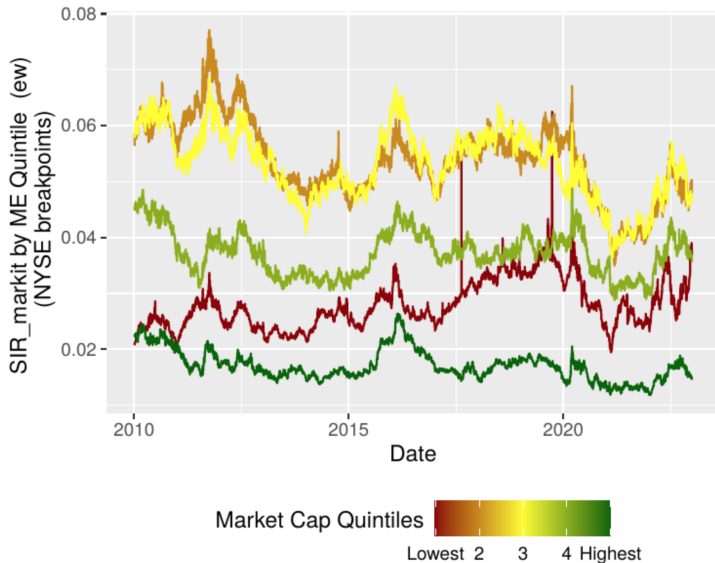
- $\text{exchcd} \in \{1, 2, 3\}$; $\text{shrcd} \in \{10, 11\}$



Average Indicative Fee by size quintile



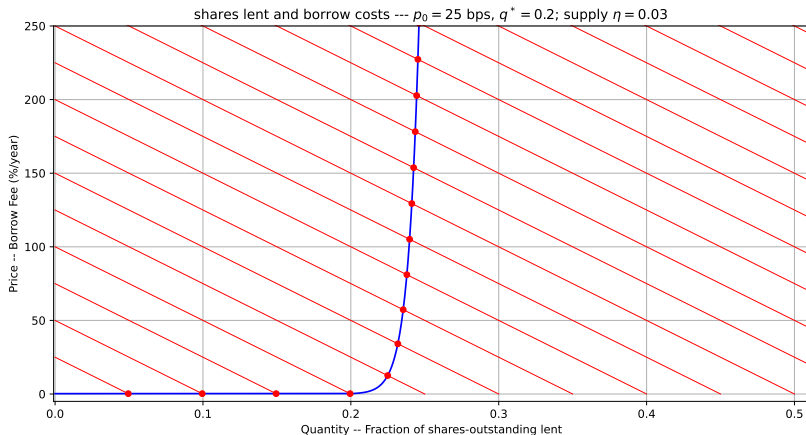
Average SIR by size quintile



What has driven the increase in borrow costs?

- The last two plots show a rapid increase in borrow costs, with no corresponding increase in SIR for low institutional ownership firms.
- This suggests an outward shift in the demand curve
- ...and a very inelastic supply curve for $SIR > IO$.

Illustration of Supply and Demand Curves



Efficiency in the Share Lending Market

- The apparent inelasticity of the supply curve in the share lending market is striking.
- NB that 100% of shares outstanding are NOT lent, and receive no fee.
- Moreover, empirically

$$\mathbb{E}[\alpha + fee | fee] \sim 0$$

$$\Rightarrow \mathbb{E}[\alpha | fee] \sim -fee$$

- See Reed (2013); however see also Daniel, Klos, and Rottke (2022)
- This means that negative α s equal to the fees are being earned by 100% of each hard-to-borrow firms' shares outstanding.
 - *What frictions are driving this?*

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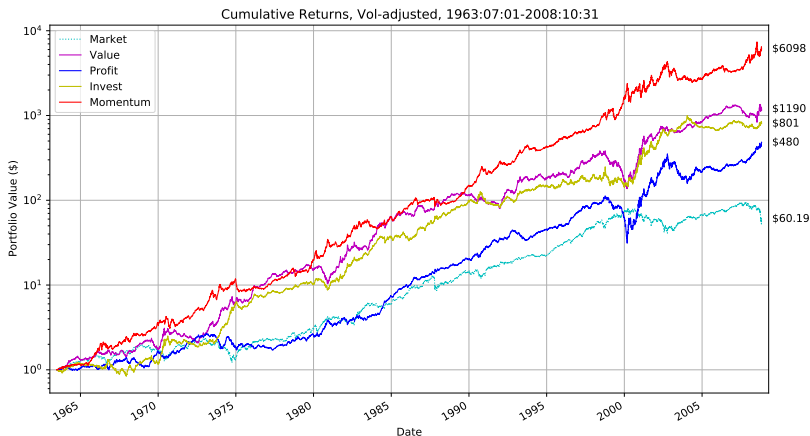
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Time Period

- The 14 year time-period for the analyses is 2006:07–2020:12.
 - The constraint is the availability of the daily *Markit* borrow-cost data.
- One issue with this time period is that a number of best known anomalies didn't perform very well in this time period.
 - It is possible that this was just because all of these anomalies were documented by July 2007, but there were a lot of other things going on between 2007-2021..

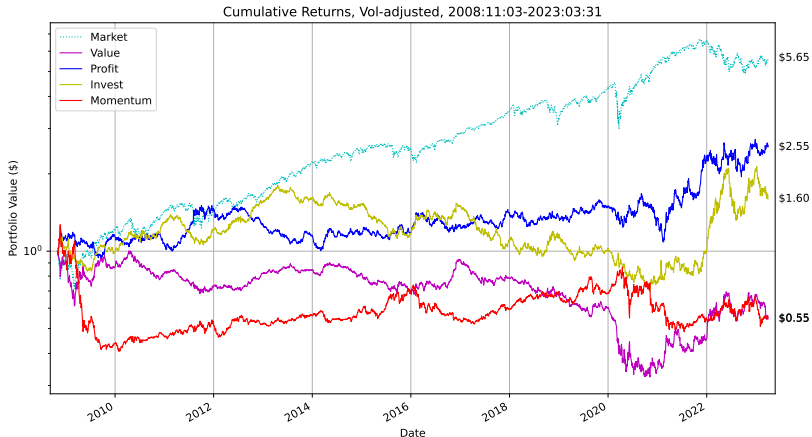
Strategy Performance pre- and post-2008:11

- This shows the returns to scaled FF5+Momentum returns from 1963:07-2008:11

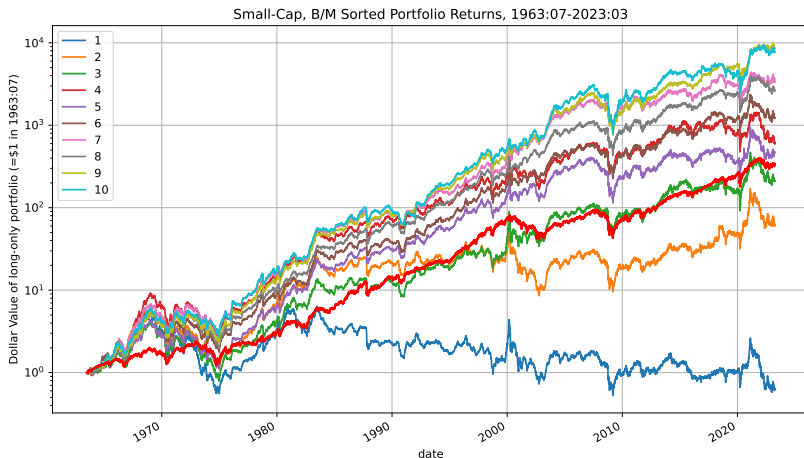


Strategy Performance pre- and post-2008:11

- This is performance for the same strategies, from 2008:11-2023:03

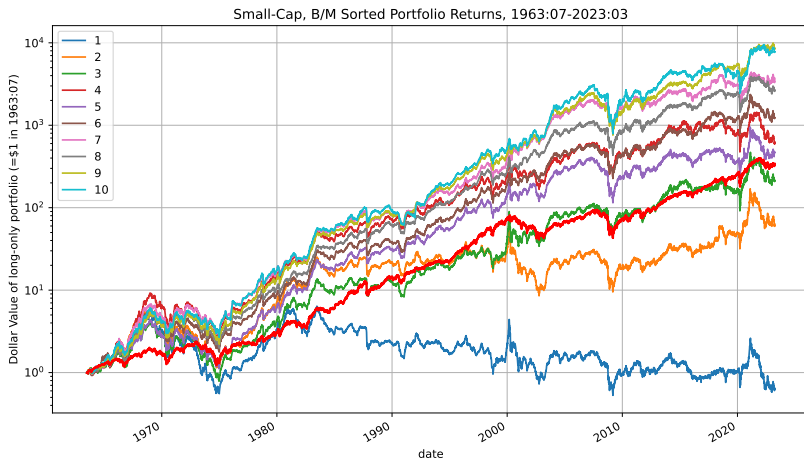


Small-cap B/M sorted portfolios



- The solid red line here is the cumulative return on the market.

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Small-cap BM sorted portfolios

- It is certainly true that the small-cap **growth** portfolio underperforms dramatically:

$$\alpha_G = -9.1\%/year, (t = -4.5)$$

Particularly in recent years, a lot of gain from shorting this portfolio could be been eliminated by short-sale costs.

- However, the small cap value portfolio dramatically outperforms

$$\alpha_V = 7.2\%/year, (t = 5.2)$$

Moreover, the performance of this portfolio could have been enhanced by lending the shares and capturing the borrow costs(?)

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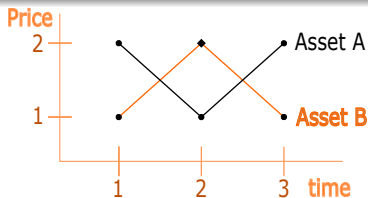
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EW portfolios

- The authors use EW portfolios here
 - They cite Jensen, Kelly, and Pedersen (2021), who argue that value-weighting introduces unnecessary noise.
 - This might be true, but EW-approaches are also problematic, because of high-turnover based on microstructure effects.
 - a good solution is any buy-and-hold approach.

Why is buy and hold important?



$$R_{EW,2} = (1/2) * (-50\%) + (1/2) * (+100\%) = 25\%$$

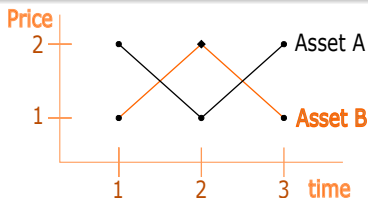
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- The est'd rets of non buy-and-hold portfolios will be biased.
- bias-magnitude depends on portfolio assets' liquidity.
- NB, Banz (1981) and Keim (1983) used EW portfolios.
 - Asness, Frazzini, Israel, Moskowitz, and Pedersen (2018) show that there is no (unconditional) size effect with buy-and-hold portfolios.

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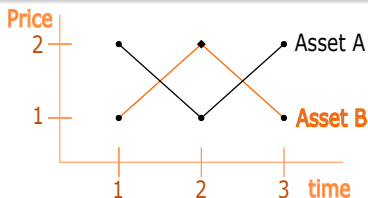
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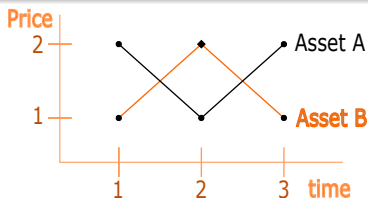
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Conclusions and Suggestions

- This analysis is really important.
- The academic finance literature has typically assumed easy/costless shorting.
- I think it is premature to conclude that the market was/is completely efficient.
 - We need to move to a more nuanced analysis of price informativeness that takes into account biases, frictions, information asymmetry
 - The recent work on asset demand estimation is promising, and is potentially useful for thinking about these issues.
 - See, e.g., Koijen and Yogo (2019).
 - How does “efficiency”, as measured by academics, evolve over time? What causes flows into and out of these strategies?

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