

Competing for Dark Trades

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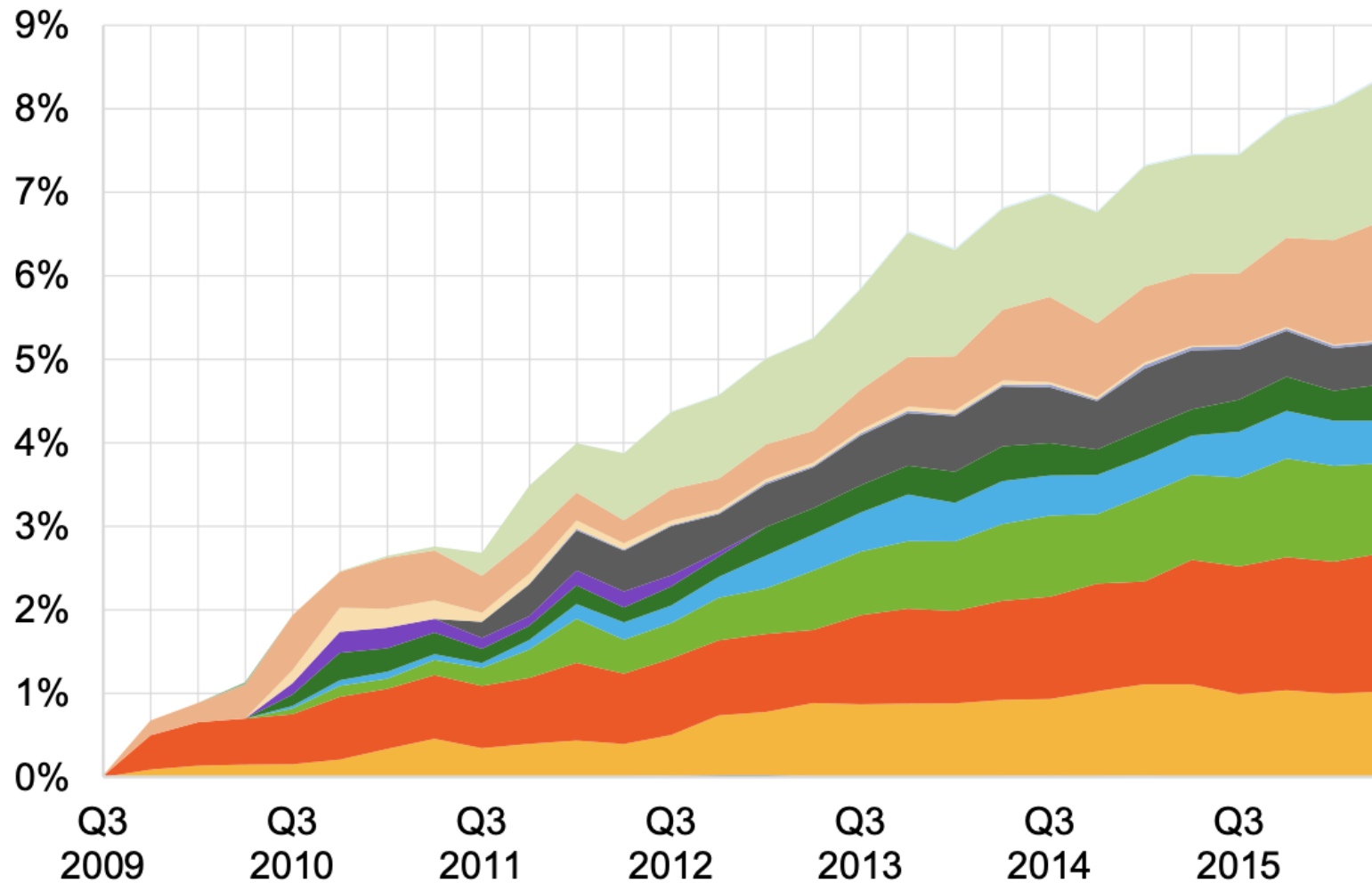
Objective

Investigate how dark pool trading works.

Measure the substitution across dark pools.

Dark pool trading

Evolution in Europe & 2 Patterns



Petrescu and Wedow (2017, ECB)

The double volume cap (DVC)

Introduced in 2017.

To protect the price discovery process in lit equity market.

2 regulations:

- a 6-month complete dark pool ban when trading *in an issue reaches 8%*.
 - Johann, Putnins, Sagade and Westheide (2019), Guagliano et al. (2020).
 - Large substitution to internalizers
- a 6-month ban on trading on a particular dark platform if trading in the security reaches *4% on that platform*.

The antecedents for the 4% rule are obscure.

The 4% rule first enforced in March 2017.

Substitution across dark pools

4% rule is a great laboratory to study the degree of substitution across dark pools.

Potential barriers to substitution

- Not every dark pool trades every stock, but all the stocks in our sample have an active alternative.
- Dark pool differentiation (Petrescu and Wedow, 2017)
- Switching costs (negligible according to traders).

Data

- Period: December 2017 - June 2022.
- European Securities and Markets Authorities reports: monthly venue-stock trading, dark trading, suspensions.
- Compustat Global: daily stock data.

Sample selection

Keep stocks without revoked suspensions.

- 790 events.
- 486 events in 11 largest European markets.
- 244 events with max dark trading 9% since March 2018.
- 141 events with max venue-level dark trading 3-6%.

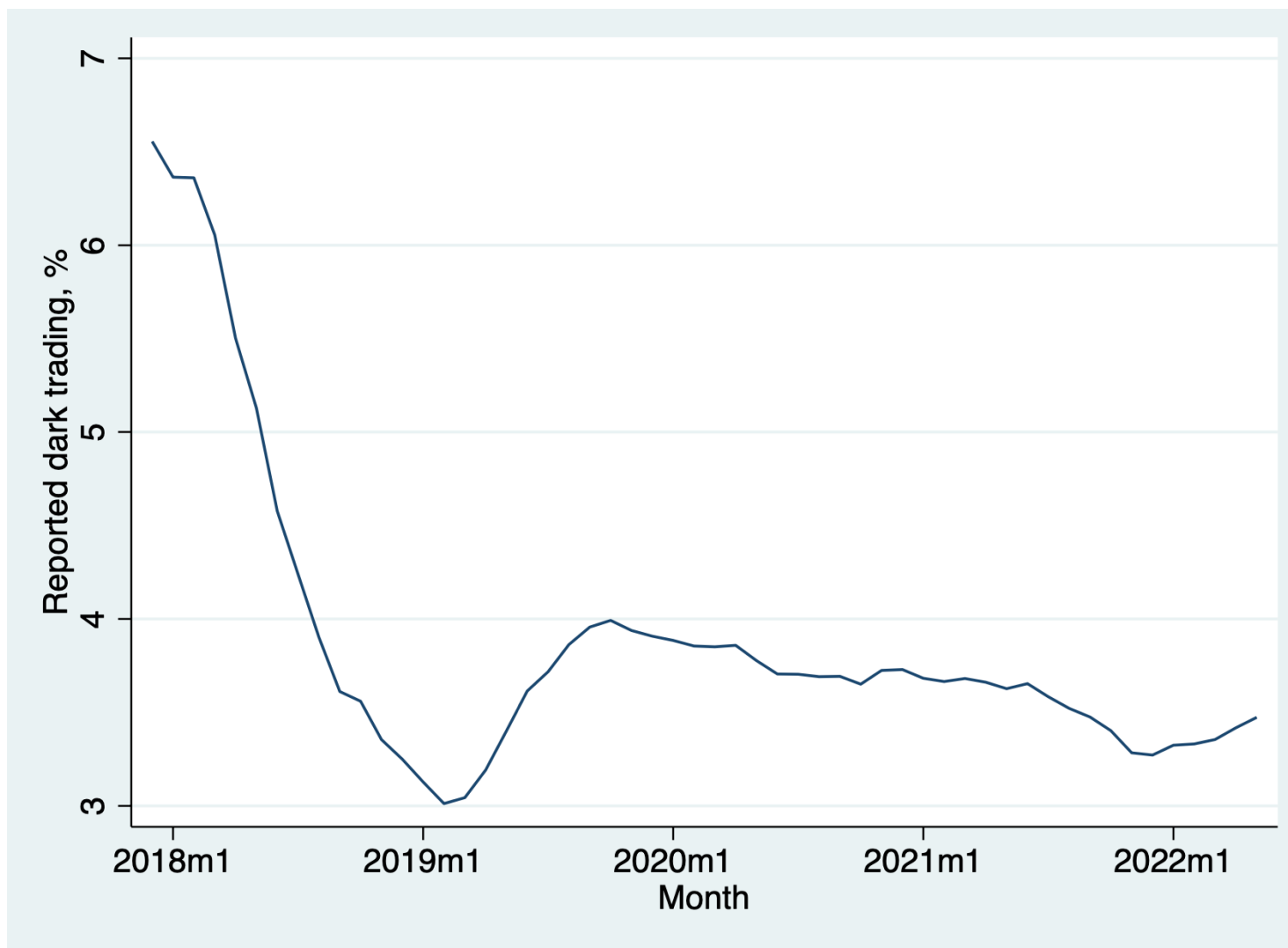
141 events:

- 122 stocks.
- 17 (1) stocks experienced 2 (3) venue-level bans.
- 11 (1) stocks experienced 1 (2) EU-level ban.

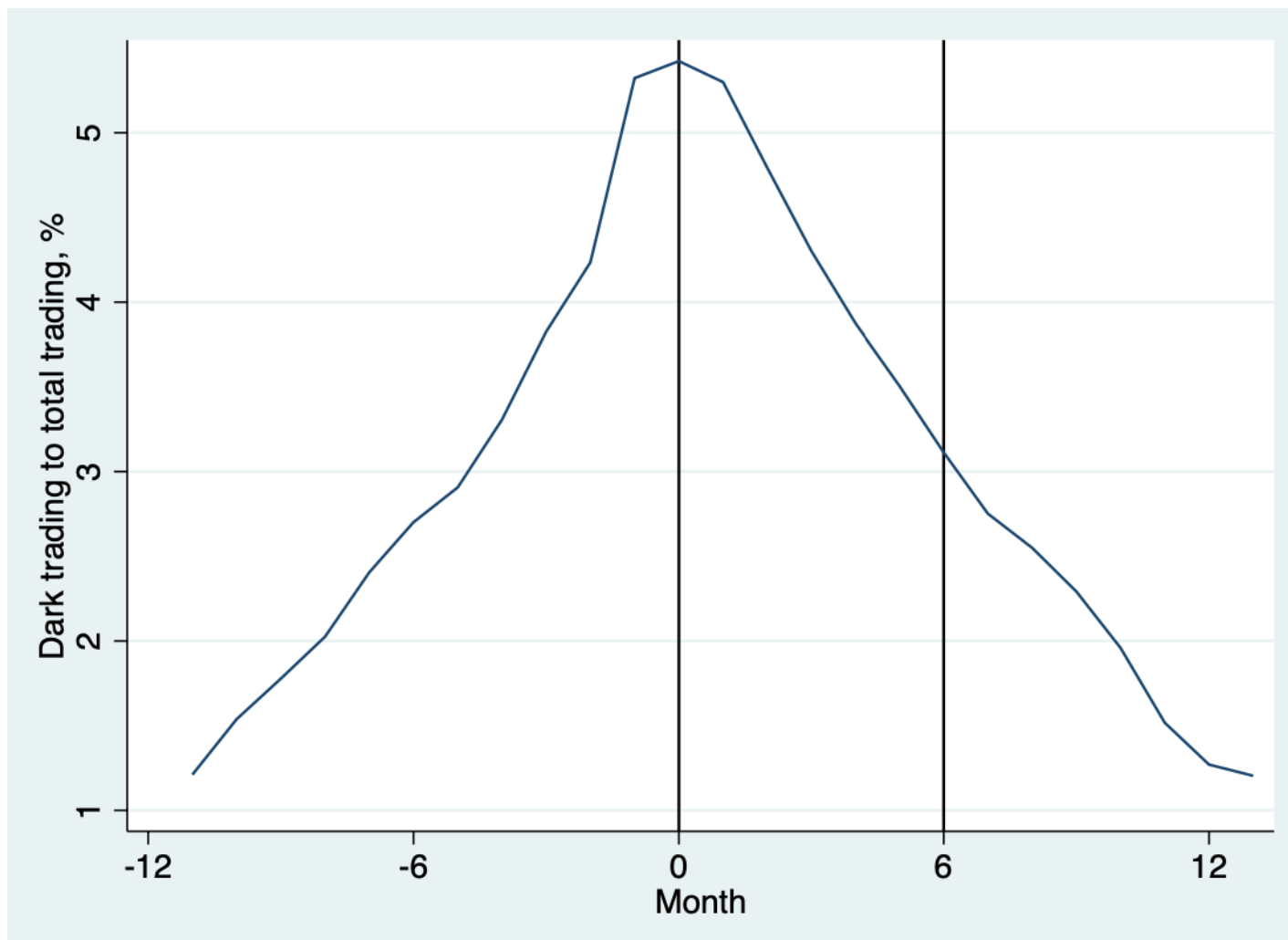
Sample dark pools

		Observations	Stocks	Traded in dark	Dark
AIMX	London Stock Exchange AIM MTF	46,021	1,168	4.20	0.02
BCXE	CBOE Europe London	230,905	6,249	61.48	0.68
CEUD	CBOE Europe Amsterdam	109,021	4,207	48.78	0.26
LIQU	Liquidnet Europe Limited	1,024,104	27,847	10.28	0.02
MERK	Euronext Oslo	3,396	170	13.53	0.37
MTAA	Euronext Milan	14,747	367	54.77	0.15
TQEM	Turquoise Europe	46,788	2,637	67.96	0.42
TRQM	Turquoise Plato	190,913	4,778	67.50	0.54
XCSE	Nasdaq Copenhagen	34,798	818	29.58	0.44
XHEL	Nasdaq Helsinki	8,273	205	76.59	0.44
XLOM	London Stock Exchange Non-AIM MTF	304,182	7,379	14.65	0.01
XLON	London Stock Exchange	182,769	8,588	23.72	0.21
XMLI	Euronext Access Paris	13,234	400	0.75	0.01
XOSL	Oslo Bors	11,822	305	76.39	0.24
XPOS	POSIT Dark	599,968	17,356	27.10	0.66
XSTO	Nasdaq Stockholm	37,151	1,642	40.68	0.35
XUBS	Aquis Exchange PLC	159,104	3,868	78.26	0.45

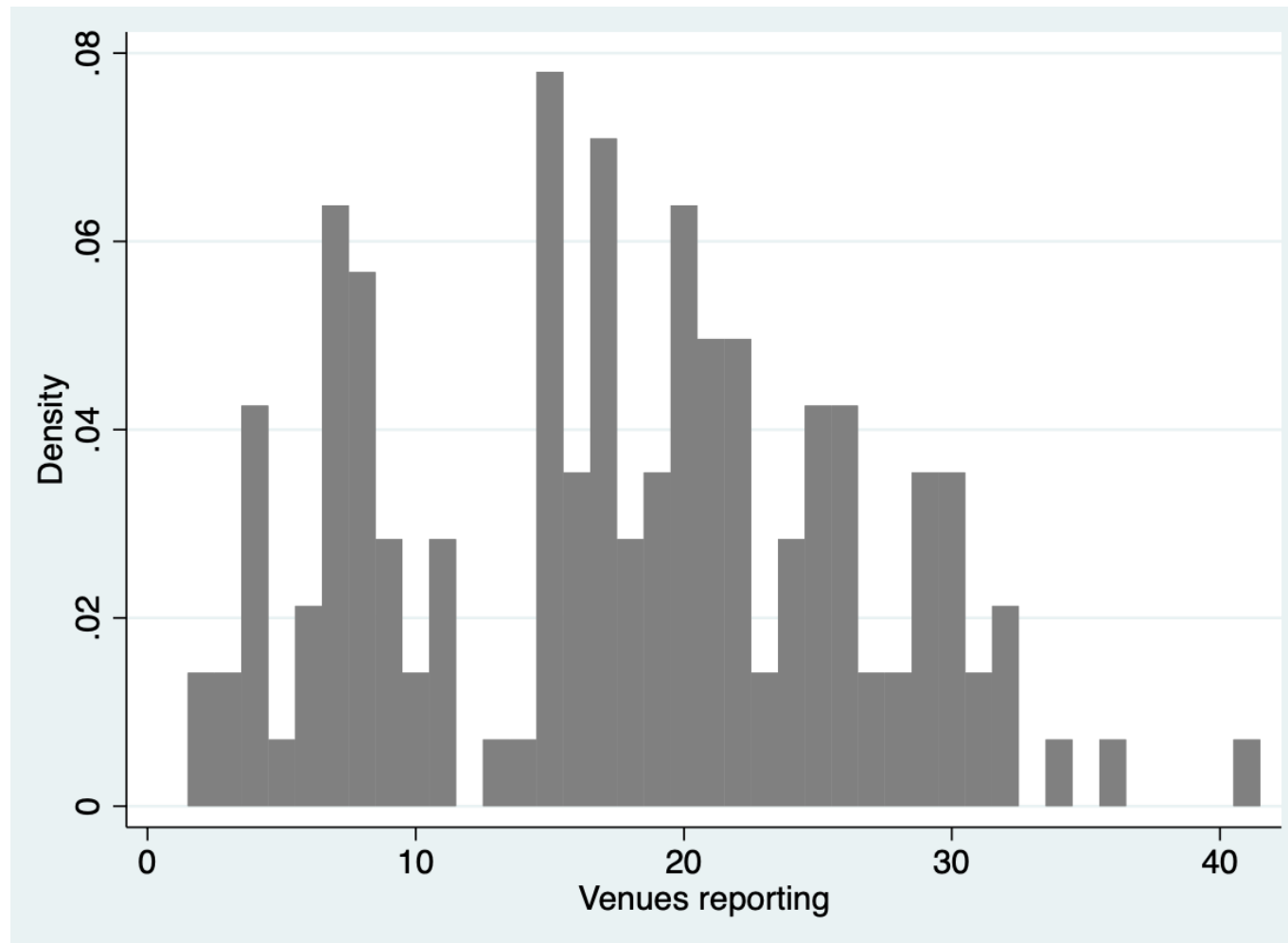
Dark trading after DVC



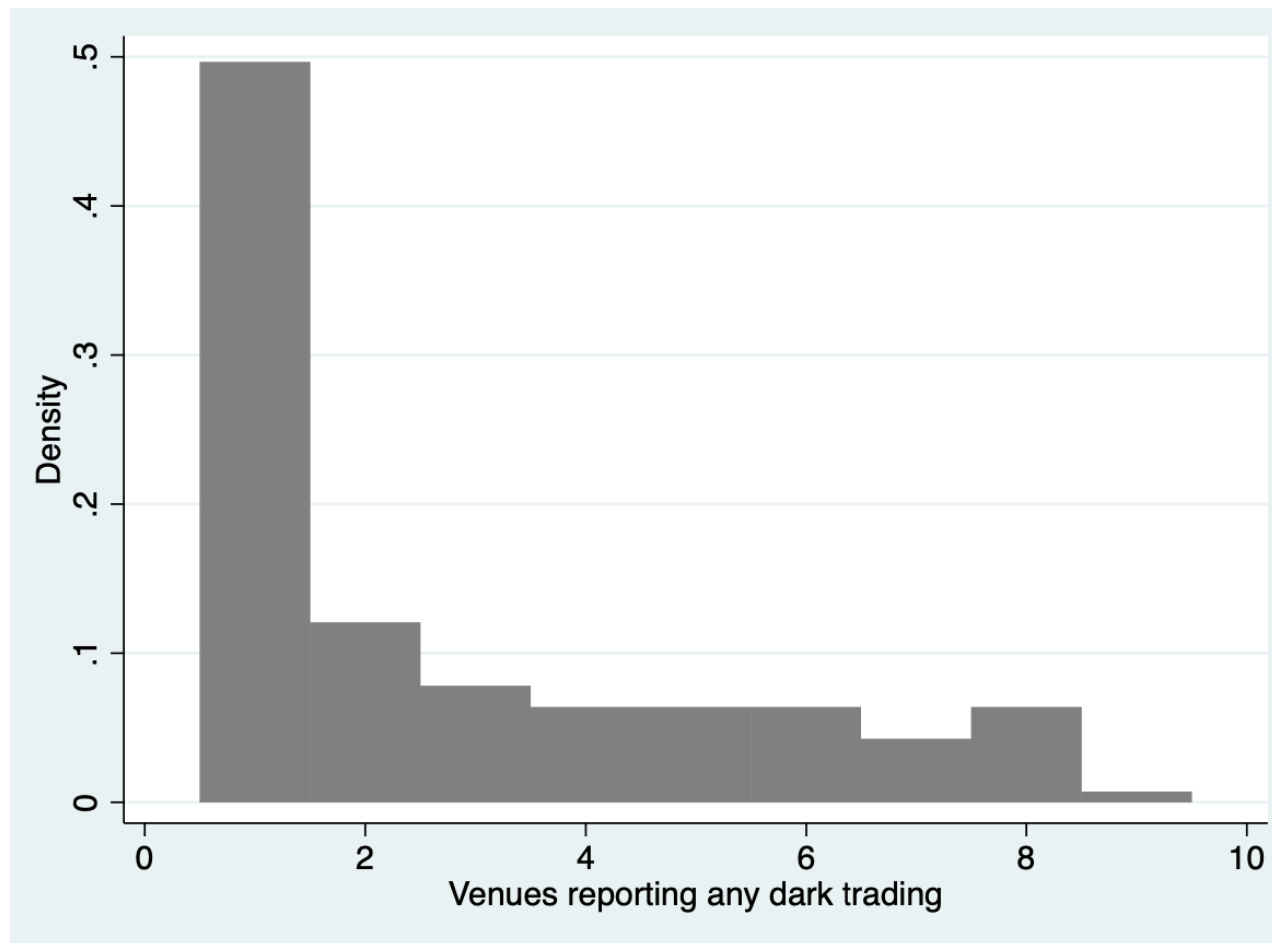
Dark trading after DVC



Many potential venues to trade suspended stocks



Venues that do trade the suspended stock



Results

$$\Delta \text{DarkVolume}_{i,m} = \alpha + \beta * \text{Ban}_{i,m} + \kappa * X_{i,m} + \epsilon_{i,m}$$

	(1) Δ DarkVolume	(2) Δ DarkVolume	(3) Δ DarkVolume	(4) Δ DarkVolume	(5) Δ DarkVolume	(6) Δ DarkVolume
Ban	-0.440*** (0.026)	-0.427*** (0.027)	-0.437*** (0.027)	-0.454*** (0.028)	-0.454*** (0.028)	
1.BanMonth						-0.225*** (0.051)
2.BanMonth						-0.541*** (0.081)
3.BanMonth						-0.523*** (0.068)
4.BanMonth						-0.502*** (0.072)
5.BanMonth						-0.567*** (0.097)
6.BanMonth						-0.413*** (0.058)
BanTotal		-0.462*** (0.084)	-0.466*** (0.090)	-0.533*** (0.093)	-0.533*** (0.093)	-0.548*** (0.094)
Δ logTrade					0.005 (0.023)	0.005 (0.022)
Observations	5,726	5,726	5,726	5,726	5,726	5,726
Time FE	No	No	No	Yes	Yes	Yes
Stock FE	No	No	Yes	Yes	Yes	Yes

Mean (medium) DarkVolume 5.3 (5.1)

$$-0.454 \times 6 = 2.724$$

Results

$$\Delta DarkVolume_{i,m} = \alpha + \beta * Ban_{i,m} + \kappa * X_{i,m} + \epsilon_{i,m}$$

	(1) Δ DarkVenue	(2) Δ DarkVenue	(3) Δ DarkVenue	(4) Δ DarkVenue	(5) Δ DarkVenue	(6) Δ DarkVenue	(7) Δ DarkVenue
1.BanV	-0.367*** (0.005)	-0.368*** (0.005)	-0.464*** (0.027)	-0.440*** (0.047)	-0.485*** (0.032)	-0.540*** (0.034)	-0.387*** (0.039)
2.BanV	-0.011 (0.007)	-0.012* (0.007)	-0.015 (0.016)	-0.025 (0.022)	-0.001 (0.024)	0.036** (0.017)	-0.043** (0.021)
3.BanV	-0.010 (0.008)	-0.011 (0.008)	-0.008 (0.011)	-0.007 (0.020)	-0.005 (0.010)		-0.011 (0.013)
4.BanV	0.001 (0.005)	0.001 (0.005)	0.008 (0.006)	0.001 (0.006)	0.019* (0.010)		0.005 (0.006)
0.BanV	-0.001 (0.002)	-0.002 (0.002)	0.004*** (0.001)	0.006*** (0.002)	0.003* (0.001)	0.005*** (0.002)	0.004** (0.001)
BanEU	-0.021*** (0.005)	-0.025*** (0.005)	-0.025*** (0.005)	-0.029*** (0.010)	-0.021*** (0.007)	-0.029*** (0.008)	-0.027*** (0.006)
L.DarkVolume	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.001)	-0.002*** (0.001)	-0.001 (0.001)	-0.002** (0.001)	-0.002** (0.001)
logVenues	-0.015*** (0.002)	-0.007** (0.003)	-0.007 (0.005)	-0.009 (0.007)	-0.004 (0.008)	-0.006 (0.008)	-0.003 (0.007)
Constant	0.052*** (0.007)	0.028*** (0.009)	0.028* (0.016)	0.036* (0.021)	0.021 (0.026)	0.025 (0.025)	0.018 (0.022)
Observations	85,892	85,892	85,503	32,994	52,407	51,178	33,834
R-squared	0.071	0.073	0.217	0.138	0.281	0.254	0.233
Stock FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	No	Yes	Yes	Yes	Yes	Yes	Yes
Venue FE	No	No	Yes	Yes	Yes	Yes	Yes
Venue-time FE	No	No	Yes	Yes	Yes	Yes	Yes
Market						Active2	Activemore2
Venue				Large	Small		

Conclusion

Academic:

- Explains why dark pool traders stay at a venue that might be contaminated with an HFT (Brugler and Comerton-Forde, 2021).
- Changes our perception of the pecking order theory (Menkveld, Yueshen, and Zhu, 2017).

Regulatory:

- The regulation failed to attract trading to lit venues and harmed the dark pool market.
- The results reveal a regulatory preference for systematic internalizers over dark pools.

Industry:

- The traders do not coordinate in the preferred alternative.

Thank you!