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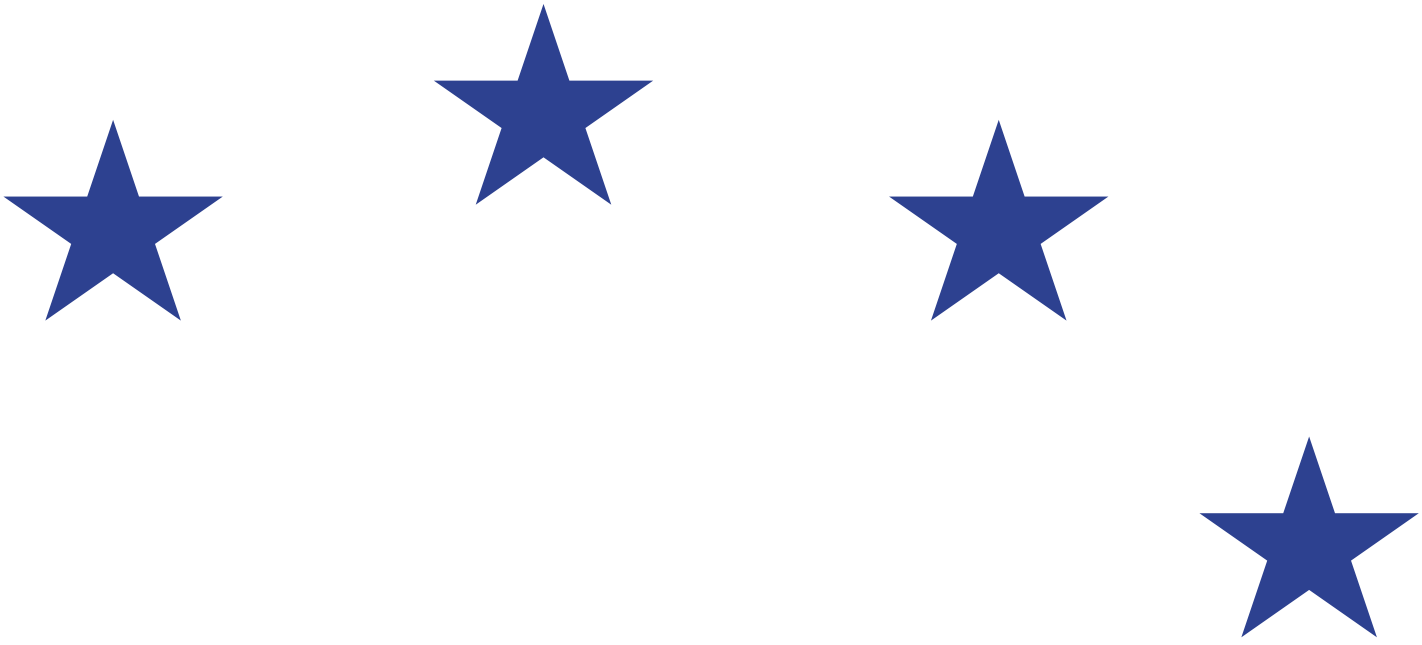
TRV Risk Analysis

The 2020 short selling bans – market impact



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Financial Stability

The 2020 short selling bans – market impact

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Summary

The severe market stress of March 2020 pushed six European authorities to impose short selling bans in a coordinated way with the aim of limiting downward price spirals. These restrictions at the height the Covid-19 related market stress allow the academic question of the effects of short selling bans on market liquidity to be revisited. Our estimation relies on a difference-in-difference regression combined with matching techniques. Consistent with prior theoretical and empirical work, these short selling bans are associated with a liquidity deterioration, measured by significantly higher bid–ask spreads (+ 7.5 % of bid–ask spreads for stocks in banned jurisdictions during the restriction, compared to the control group) and Amihud illiquidity values (between + 2.2 % and 4.8 %). However, using two different measures of volatility, the analysis highlights that shares in banned countries exhibited a lower degree of volatility during the ban period. Distinguishing by stock characteristics, the deterioration of liquidity appears more pronounced for large-cap stocks, highly fragmented stocks and stocks with listed derivatives – pointing towards stronger effects for shares deemed as liquid. The econometric analysis undertaken did not identify any statistically significant correlation with abnormal returns, suggesting that the bans did neither harm nor sustain market prices. Finally, according to the analysis of net short positions data across European jurisdictions, the bans did not entail substantial displacement effects from non-banning to banning jurisdictions.

COVID-19 related March 2020 market stress

As a result of the COVID-19 pandemic, financial markets were hit by an external shock of unprecedented size in 2020. During the initial stage of the crisis in 1Q20, European markets experienced one of the fastest declines in recent history, including surges in volatility and liquidity contractions. As investor sentiment and equity market performance turned negative, short selling activity – a widespread phenomenon during market downturns – increased from late February 2020, reflecting investors' pessimism.

During the first wave of the COVID-19 crisis, four Competent Authorities (CAs) initially imposed one-day short selling bans on selected stocks[2], in accordance with Article 23 of the short selling regulation.[3] Subsequently, six CAs (Austria, Belgium, France, Greece, Italy, Spain) imposed **long-term exchange-wide short selling bans** to mitigate the effects of adverse developments, which started on 18 March 2020 and were lifted on 18 May 2020 as market conditions improved. The initial shock waned in 2Q20, and equity prices greatly recovered in 2H20.

Our empirical analysis seeks to contribute to ESMA's work to promote financial stability, and in particular supervisory convergence in the context

[1] This article was written by Caroline Le Moign and Alessandro Spolaore. Further details can be found in the analysis presented in the annex to ESMA (2021), Consultation Paper - Review of certain aspects of the short selling regulation.

[2] On 13 March 2020, Italy and Spain banned short selling on 85 and 69 stocks, respectively; on 17 March 2020, while Spain issued a long-term ban, Belgium, France, and Italy banned short selling for 17, 92 and 20 shares, respectively. . Finally, on 18 March Belgium, France, Italy, Austria and Greece also issued long-term bans which lasted, taking into account the renewals, until 18 May 2020.

[3] Regulation (EU) No 236/2012 on short selling.

of the latest review of the EU short selling regulation) – see ESMA (2021).

Analytical approach

Most of the **academic literature** on short selling states that, under efficient market conditions, short sellers are informed traders and constraining short sales reduces the informational efficiency of prices[4], and thus can reduce market quality. Mazzacurati (2018) showed how short selling on European markets is highly concentrated among a small number of short sellers, with a large influence of public disclosure on short selling behaviour. However, the literature also states that predatory short selling can contribute to the decline of stock prices and can thus be responsible for a higher probability of default, especially for financial stocks and during crisis periods.

Focusing on the 2020 European bans, Siciliano and Ventoruzzo (2020) analysed their impact on 14 selected European Member States and the UK. Their results estimate a significant increase of bid–ask spreads (+ 14 %), and a small decrease of liquidity based on the Amihud illiquidity indicator (- 0.1 %), with more pronounced effects on financial stocks.

In the same manner, Lopez and Pastor (2020) analysed the differences in market quality between the Spanish IBEX35 (subject to short selling restrictions) and the German DAX30 (not subject to short selling restrictions) during the 2020 market stress. The results are not clear-cut: whereas they identify a significant and negative impact of the ban on bid–ask spreads, which persisted once the ban was lifted, the ban also seemed to have improved the depth of IBEX35 constituents, based on the Amihud illiquidity indicator – in contrast with Siciliano and Ventoruzzo (2020).[5] The authors did not find further evidence that the securities subject to the ban experienced a decrease in their trading volume or volatility, and no significant impact of the ban on prices or on the spreads of credit default swaps. In addition, no specific effect was observed for financial stocks.

Our estimation relies on a difference-in-difference regression combined with matching techniques. This empirical approach, extensively used in economic studies of regulatory changes, is designed to measure the effect of a 'treatment', here the short selling ban, on a set of shares through the comparison of the behaviour of the treated group and a control sample (i.e. shares not subject to a short selling ban), before and after the short-selling ban.

Starting from a wider set of EEA31 shares[6], we employed a coarsened exact matching process[7] in order to pair treated observations (banned shares) with untreated ones (non-banned shares). This statistical technique, which 'coarsens' the continuous variables into strata and discards the strata that do not contain at least one treated and one control observation, contributes to balancing the treated and the control groups in order to increase the robustness of the analysis.

After the matching process[8], the dataset covers 2,464 EEA31 stocks[9] between 13 January 2020 (i.e., two months before the bans) and 30 June

4 Diamond and Verrecchia (1987).

5 However, since this result is surprising and not in line with the literature, the authors point out that further research on this issue may be useful, especially since Amihud levels for Spanish securities were higher than their German control group - a difference that could have been caused by country risk.

6 Since the data used in the analysis encompass 2019 and 2020, i.e. before the end of the Brexit transition period, and the amount of trading activities in the UK allows for increasing accuracy of the analysis during the matching process, the UK shares are included in the matching process and in the regressions as a control group.

7 Among a range of potential variables considered, the variables used for the matching process are: market capitalisation; sectoral information; MiFID II liquidity status (using ESMA transparency calculations).

8 Among a range of potential variables considered, the matching procedure of treatment and control group used the share market capitalisation, its sectoral information and liquidity status using the liquidity assessment from ESMA transparency calculations.

9 The list of shares is created using the European Financial Instrument Reference Data System (FIRDS) for the years 2019 and 2020, taking into account possible ISIN changes. Shares terminated before 2020, and shares exempted from the bans are excluded. For these instruments, the relevant variables are extracted using ESMA Financial Instruments Transparency System (FITRS) and FIRDS databases, along with market data. From this dataset, penny stocks, i.e. shares with an average price below EUR 1 in 4Q19, are excluded, as well as observations with negative bid–ask spreads and daily returns equal to zero, which can signal stale prices. Finally, to deal with possible data quality issues, we further winsorise the data by eliminating the observations corresponding to the top and lowest 1 % of bid–ask spreads and Amihud indicator, along with bid–ask spreads that are higher than 10 % on average during 2020.

2020[10], and the final sample relies both on ESMA databases and market data.

Short selling bans and market quality

The difference-in-difference model estimates the impact of the bans on four main daily variables of interest: two variables to assess the liquidity of the equity market (bid–ask spreads and the Amihud illiquidity indicator), abnormal returns (to represent the evolution of prices) and a volatility measure.

The baseline regression model follows Beber and Pagano (2013) and employs the following baseline regression model, where s represents the share included in the analysis, c the country and t the time index:

$$Y_{sct} = \alpha + \beta Treatment_s + \gamma Event_t + \delta Treatment_s * Event_t + \theta Controls_{sct} + FE + \epsilon_{sct}$$

Y_{sct} is the dependent variables for which the regression is estimated (e.g. bid–ask spreads); $Treatment_s$_a dummy variable equal to one over all trading days for shares in banned countries; $Event_t$_ a dummy variable equal to one for all shares during the validity of the short selling ban; and $Treatment_s * Event_t$ the interaction variable which isolates the effect of the treatment on the affected stocks. It is, hence, the most important coefficient of this regression.

Finally, a set of control variables are included in the regression ($Controls_{sct}$), either at the stock level (market capitalisation, daily traded volumes, fragmentation indicator), at the country level (stringency index of the containment policies) or at the European level (VSTOXX), as well as fixed-effects (FE) at the stock and/or time level.

Liquidity

The effects of the short selling ban on market liquidity for the concerned shares appear to be negative, as indicated by the sign and the statistical significance of the main variable of interest in the regression: the interaction between treatment and event (Table 1).

Table 1

Main regression results

Liquidity variables

	Log bid–ask spread (1)	Log bid–ask spread (2)	Log Amihud (3)	Log Amihud (4)
Treatment*Event	0.072***	0.072***	0.022***	0.047***
	(0.006)	(0.006)	(0.011)	(0.011)
Event	0.023***		0.092***	
	(0.005)		(0.009)	
Fragmentation	- 0.016***	- 0.014***	0.029***	0.032***
	(0.003)	(0.03)	(0.006)	(0.006)
Market cap.	- 0.00002***	- 0.00001***	- 0.00004***	- 0.00003***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Volume	- 0.00001***	- 0.00001***	- 0.0001***	0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
VSTOXX	0.009***		0.022***	0.047***
	(0.001)		(0.011)	(0.011)
Stringency index	0.002***	0.002***	0.003***	0.004
	(0.0001)	(0.0002)	(0.0001)	(0.0003)
Historical volatility	0.014***	0.014***	0.062***	0.061***
	(0.0005)	(0.0005)	(0.001)	(0.001)
Fixed effects	Stock	Stock, Day	Stock	Stock, Day
Observations	203,833	203,833	198,655	198,655
Adjusted R^2	0.779	0.780	0.863	0.866

Note: Estimates of the regression, robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1.
The presence of stock and day fixed effects may result in dummy variables (such as Treatment, Event) to be removed from the estimation due to multicollinearity.
Sources: ESMA.

The short selling ban is correlated with a widening of the bid–ask spread of the concerned shares: the regression coefficient (0.072) is statistically significant and implies an average increase of 1.075 (=$e^{0.072}$), meaning bid–ask spreads increased by 7.5 % for stocks in banned jurisdictions during the restriction, compared to the control group. Similarly, the coefficient for Amihud is significant and the ban is associated with an increase of between 2.2 % and 4.8 % in the Amihud illiquidity indicator.

Abnormal returns

In addition, the ban is linked with a decrease in abnormal returns of - 0.09 % for shares under the ban, with respect to their matched peers (Table 2). However, when adding the volatility variable into the regression model, the impact becomes non-statistically significant. In both cases, the adjusted R-squared is small, signalling that the proportion of the variance of the abnormal returns explained by the model is minor.

[10] To make sure that the choice of the time period did not have an important effect on the results, the regressions were also estimated on a shorter time period, namely from 17th February 2020 up to the end of the ban period (18th May 2020), with similar results. However further refinements can be considered in an extended analysis of the market impact.

In the literature, the effectiveness of short selling bans in supporting stock prices is ambiguous. Looking at excess returns during the 2008 financial crisis, Beber and Pagano (2013) show that the bans have not been associated with better stock price performance globally, with the US being the only exception. In line with our results, Siciliano and Ventoruzzo (2020) estimate that banned stocks significantly underperformed non-banned stocks, since those firms' excess returns were on average 0.1 % lower during the period of the ban.

Table 2

Main regression results

Abnormal returns and volatility

	Abnormal returns	Abnormal returns	Intraday volatility	Intraday volatility
	(4)	(5)	(6)	(7)
Treatment*Event	- 0.0009**	- 0.005	-0.187***	- 0.299***
	(0.0004)	(0.0004)	(0.025)	(0.025)
Event	0.0052***		0.065***	
	(0.0004)		(0.021)	
Fragmentation	0.0001	0.0001	- 0.022*	- 0.033***
	(0.0002)	(0.0002)	(0.013)	(0.013)
Market cap.	0.00000***	0.00000***	- 0.0001***	- 0.0001***
	(0.0000)	(0.0000)	(0.00001)	(0.00001)
Volume	0.00000***	0.0000**	0.0002***	0.0002***
	(0.0000)	(0.0000)	(0.00001)	(0.00001)
VSTOXX	- 0.0004***		0.090***	
	(0.00001)		(0.0005)	
Stringency index	0.0001***	0.0001***	- 0.011***	0.002***
	(0.00001)	(0.00001)	(0.0003)	(0.001)
Intraday volatility	0.0018***	0.0020***	NA	NA
	(0.00004)	(0.0004)		
Fixed effects	Stock	Stock, Day	Stock	Stock, Day
Observations	206,821	206,821	209,972	209,972
Adjusted R^2	0.0229	0.045	0.362	0.383

Note: Estimates of the regression, robust standard errors in parentheses,
*** p<0.01, ** p<0.05, * p<0.1. NA: Not Applicable – these variables were not included in the regression.
The presence of stock and day fixed effects may result in dummy variables (such as Treatment, Event) to be removed from the estimation due to multicollinearity.
Sources: ESMA.

Volatility

Finally, the volatility analysis highlights that shares in banned countries exhibited a lower degree of volatility during the ban period. The coefficients displayed in Table 2 imply a statistically significant reduction in volatility for the banned shares: compared to the sample average/median (both equal to 2.9), the coefficients (- 0.187, - 0.299) imply an average decrease of between - 6.4 % (= - 0.187/2.90) and - 10.3 % (= - 0.299/2.90). We calculated two measures of volatility, but since the results for the historical volatility measure are similar, only results with the intraday volatility variable are presented here.

The same type of analysis is then estimated on different groups of stocks, in order to assess whether short selling bans had differentiated effects on the liquidity of stocks with specific characteristics.

Differentiated effects by stock characteristics

Table 3

Other regression results

Bid–ask spreads for small and large cap. stocks, low- and high-fragmented stocks, and impact of derivatives listing

	Small-cap. stocks	Large cap. stocks	Listed derivatives	Low-fragmented stocks	High-fragmented stocks
	(8)	(9)	(10)	(11)	(12)
Treatment* Event	0.043***	0.175***	0.107***	0.008	0.135***
	(0.015)	(0.011)	(0.010)	(0.12)	(0.012)
Market cap	- 0.015***	- 0.00000*	- 0.00001***	- 0.0004***	- 0.000
	(0.001)	(0.000)	(0.000)	(0.0001)	(0.000)
Volume	- 0.0003***	- 0.00001***	- 0.00001***	- 0.0001***	- 0.00001***
	(0.00004)	(0.0000)	(0.0000)	(0.0002)	(0.0000)
Stringency index	0.002***	0.0001	0.001***	0.003***	0.001***
	(0.0004)	(0.0003)	(0.0002)	(0.0003)	(0.0003)
Historical volatility	0.011***	0.017***	0.015***	1.565***	1.363***
	(0.001)	(0.001)	(0.001)	(0.073)	(0.124)
Fragmentation	0.034*	- 0.019***	- 0.016***	NA	NA
	(0.019)	(0.004)	(0.004)		
Treatment* Event*Derivatives listed	NA	NA	0.075***	NA	NA
			(0.012)		
Fixed effects	Stock, Day	Stock, Day	Stock, Day	Stock, Day	Stock, Day
Obs.	34,530	69,863	118,413	54,652	62,185
Adjusted R^2	0.504	0.677	0.739	0.545	0.733

Note: Estimates of the regression, robust standard errors in parentheses,
*** p<0.01, ** p<0.05, * p<0.1. NA: Not Applicable – these variables were not included in the regression.
The presence of stock and day fixed effects may result in dummy variables (such as Treatment, Event) to be removed from the estimation due to multicollinearity.
Sources: ESMA.

For instance, separating between the smallest (small-cap. stocks) and the largest (large-cap.) market capitalisation of our sample, we observe that the bans are correlated with a stronger increase in the bid–ask spreads of large-cap (+ 19.1 %) compared to small-cap (+ 4.1 %) companies (Table 3). A similar estimation on the Amihud illiquidity indicator confirms that the adverse liquidity effect of bans was more pronounced for large-cap shares, with a statistically significant effect on Amihud of + 31.0 % for large-cap shares and of – 9.3 %, i.e. a slight increase in liquidity for small-cap

shares.[11] These results are similar to Boehmer et al. (2013), who argue that lower impacts of short selling restrictions on small-cap stocks are not surprising given that the level of shorting activity did not reliably change for the US small-cap stocks during the 2008 ban, contrary to large-cap stocks.

Since in our sample stocks with listed derivatives are usually large-cap stocks, we estimate the same regression on the large-cap stocks (i.e. in the third and fourth quartile of market capitalisation of our sample) and add a dummy variable for stocks with available listed derivatives (options, futures and warrants) – allowing us to single out the effect of having listed derivatives from the market size effect.[12]

In line with the results for large-cap stocks, the results show that the ban widened the bid–ask spread (+ 11.3 %), with an additional negative impact on liquidity for stocks with listed derivatives (+ 7.8 %). A similar effect is observed in the estimation of the Amihud indicator (+ 14.8 % of the illiquidity indicator for large-cap, and an additional 12.7 % for stocks with listed options). These results confirm that the bans had a stronger impact on the liquidity of the stocks with listed derivatives, i.e. the most liquid stocks.

Fragmentation

Finally, using the fragmentation indicator - calculated as the inverse of the Herfindahl-Hirschman Index for volumes traded by venue - the impact of the bans on bid–ask spread does not appear statistically significant for shares with low trading fragmentation. However, bans seem to be linked to bid–ask spread increases for shares with high trading fragmentation (+ 14.5 %). The same discrepancy in the liquidity deterioration is observed when looking at the Amihud illiquidity indicator, with low fragmentation shares seeing an improvement in their liquidity (- 5.3 % of the illiquidity), while highly fragmented shares saw a deterioration (+ 30.5 %).

Effects across sectors

To assess whether **sectoral dynamics influenced the effects of the bans**, we performed the same analysis focusing on the financial and industrial sectors (Table 4). All in all, the results do not appear to be conclusive to claim the presence of a “sectoral effect”.

Table 4

Other regression results

Variables and sectoral dummies

	Log bid–ask spread	Log bid–ask spread	Log bid–ask spread	Log Amihud	Log Amihud	Log Amihud
Treatment* Event	0.072***	0.066***	0.062***	0.047***	0.044***	0.032**
	(0.006)	(0.007)	(0.007)	(0.011)	(0.011)	(0.011)
Treatment* Event *Financials	NA	0.048***	NA	NA	0.025	NA
		(0.015)			(0.024)	
Treatment* Event *Industrials	NA	NA	0.049***	NA	NA	0.074***
			(0.011)			(0.018)
Fragmentation	- 0.016***	- 0.014***	- 0.014***	0.032***	0.032***	0.032***
	(0.003)	(0.003)	(0.003)	(0.006)	(0.006)	(0.006)
Market cap.	- 0.00001***	- 0.00001***	- 0.00001***	- 0.00003***	- 0.00003***	- 0.00003***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Volume	- 0.00001***	- 0.00001***	- 0.00001***	- 0.0001***	- 0.0001***	- 0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Stringency index	0.002***	0.002***	0.002***	0.0004	0.0004*	0.0004*
	(0.0002)	(0.0002)	(0.0002)	(0.0003)	(0.0003)	(0.0003)
Intraday volatility	0.014***	0.014**	0.014**	0.061***	0.061***	0.061***
	(0.0005)	(0.0005)	(0.0005)	(0.001)	(0.001)	(0.001)
Fixed effects	Stock, Day	Stock, Day	Stock, Day	Stock, Day	Stock, Day	Stock, Day
Observations	203,833	203,833	203,833	198,655	198,655	198,655
Adjusted R^2	0.78	0.78	0.78	0.866	0.866	0.866

Note: Estimates of the regression, robust standard errors in parentheses,
*** p<0.01, ** p<0.05, * p<0.1.
The presence of stock and day fixed effects may result in dummy variables (such as Treatment, Event) to be removed from the estimation due to multicollinearity.
NA: Not Applicable – these variables were not included in the regression.
Sources: ESMA.

In fact, the impact of the bans on the bid–ask spread is quite similar for financials (+ 11.7 %) and industrials (+ 11.4 %), and more pronounced than the general impact of the ban on bid–ask spreads (+ 7.5 %). The impact on the Amihud illiquidity indicator is significant and more important for industrials (+ 10.9 %) than for other shares (+ 4.8 %), while it is not significant for financials. This might mean that other

[11] All references to further analysis not presented in the available tables are in the annex to ESMA (2021), Consultation Paper - Review of certain aspect of the short selling regulation.

[12] Since in our sample stocks with listed derivatives are usually large cap stocks, this choice helps to single out the effect of having listed derivatives from the market size effect.

characteristics, such as fragmentation level or historical volatility, have more importance in explaining the liquidity evolution of the shares under the ban.

Contrary to previous crises of a financial nature, the financials subset did not seem to behave entirely differently than other stocks during the COVID-19 market stress. This might be explained by the fact that this crisis impacted both the financial sector and the real economy from the outset, which were also both supported by accommodative monetary policies and fiscal support at the European and national levels.

Possibility of a displacement effect

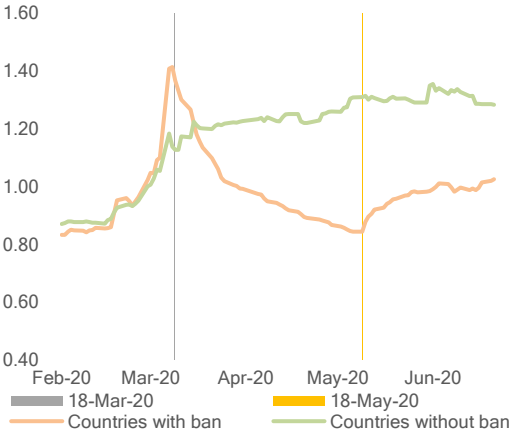
To gauge **the possibility of a shift of short selling activity** from banning jurisdictions to non-banning ones (i.e. a 'displacement' effect), an exploratory analysis is presented to assess the potential extent of such a phenomenon.

First, the evolution of net short selling positions (NSPs) in our matched sample shows a large increase before the introduction of restrictive measures across Member States. Given the balanced nature of the matched sample, constructed with the purpose of pairing similar stocks across banned and non-banned countries, the existence of a displacement effect would imply a drop in NSP levels for treatment shares combined with a corresponding rise in NSP levels for control shares.

By design, in countries with bans, NSPs started to decrease after their introduction, declining by 52 bps between the ban enactment and its lifting. The increase of NSPs in non-banning jurisdictions also slowed down significantly from mid-March after the introduction of bans in other jurisdictions (with an increase of 15 bps from March to May 2020, when the observed increase from February to March was 27 bps), suggesting there was no clear displacement effect of short selling bans or reversal of NSPs towards non-banned shares (Chart 1).

Additionally, the activity of short sellers was examined with publicly disclosed position data, with the purpose of understanding whether the bans affected the behaviour of short sellers. A decrease in the total number of publicly disclosed NSPs can be observed in countries with and without bans. The number of active short sellers[13] in banning countries dropped from 99 to 86 – a 13 % decline – whereas in non-banning countries, the number dropped from 174 to 170 (– 2 %).

Chart 1
Market value of NSPs for matched sample
No displacement effect observed



Note: Net short positions on the CEM matched sample, as a % of the total issued share capital, split by countries with ban and without ban. Applied issued share capital for reference of 10 February 2020.
Sources: NCAs, Refinitiv EIKON, ESMA.

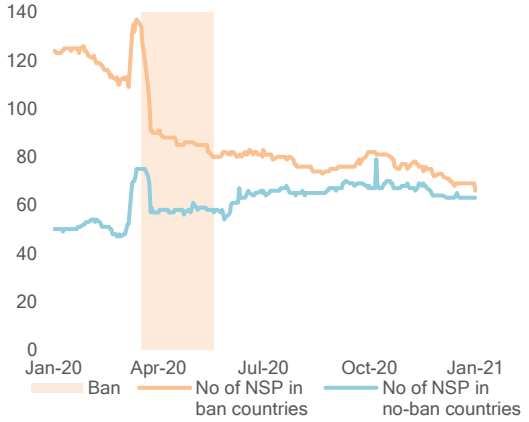
Finally, to check for further signs of impacts on short selling activity patterns, position holders were grouped according to their historical behaviour between January 2020 and the enactment of the bans.

Short sellers that held 50 % (or more) of their positions in banning countries before the bans did not modify their shorting activity in a significant manner, and on 18 May 2020 still held 58 % of their positions in banning jurisdictions, compared to 63 % on the day of the bans enactment (Chart 2). Investors who were not active short sellers before the start of the bans had no choice but to take short positions in non-banning jurisdictions. Thus, for these investors, the bans acted as a constraint on their short selling preferences. As soon as the bans ended, their exposure to banning jurisdictions started to increase. In conclusion, the analysis of publicly

[13] "Active short sellers" are those short sellers with NSPs at or above 0.5% of the issued share capital of an issuer that have published their position.

disclosed data on NSPs does not point towards a major displacement effect of bans.

Chart 2
'Ban preference': number of publicly disclosed NSPs
No relevant modification of shorting activity



Note: Number of NSP in EEA countries by position holders with 50 % or more of their positions between 1 January and 18 March 2020 in banned countries.
Sources: NCAs, ESMA.

Conclusion

The European long-term short selling bans of 2020 appear to have had mixed effects, since they entailed a deterioration of market liquidity but also diminished the volatility of the shares concerned. In line with the literature on the subject, constraining short sellers from opening short positions contributed to higher bid–ask spreads and higher Amihud illiquidity values. At the same time, considering the uncertainty linked to the COVID-19 market stress, curbing short selling activity with the purpose of avoiding disorderly downward price spirals appears to have contributed to a reduction in volatility for banned shares.

The econometric analysis undertaken did not identify statistically significant correlations with abnormal returns, suggesting that the policy did not harm nor sustain market prices over the enactment period. Furthermore, when investigating differentiated effects, results show stronger liquidity reduction for large-cap shares, shares with listed derivatives and highly fragmented shares – pointing towards stronger effects for shares deemed as liquid. Additional analysis can be conducted to further clarify the impacts of short selling constraints and the most relevant factors interacting with them.

Finally, according to the analysis of NSPs data across European jurisdictions, it seems that the bans did not result in significant displacement effects from non-banning jurisdictions to banning ones – pointing towards the effect of coordination and consistency between Member States observed during the 2020 bans, when taking measures in exceptional circumstances. Our results inform ESMA's work on regulation, highlighting the effects of the short selling bans on market confidence.

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