Journal of Financial Stability 25 (2016) 115–131

Contents lists available at ScienceDirect

Journal of Financial Stability

journal homepage: www.elsevier.com/locate/jfstabil

The 2011 European short sale ban: A cure or a curse?☆

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ARTICLE INFO

Article history:
Received 26 February 2015
Received in revised form 19 July 2015
Accepted 6 October 2015
Available online 23 October 2015

JEL classification:
G1

Keywords:
Short sale ban
Contagion risk
Financial stability
Option pricing
Implied jump risk

ABSTRACT

This paper examines whether the 2011 European short sale ban on financial stocks proved to be successful or had a negative impact on financial markets. We explicitly take an options market perspective and focus on market participants' changes in beliefs and expectations. During the ban, short positions in banned stocks decreased, whereas they increased for non-banned stocks. Our results indicate that the ban increased implied jump risk levels, thereby negatively impacting the banned financial stocks. However, we also observe that after the announcement of the ban, financial contagion risk actually dropped for banned stocks. Instead of a substitution effect between regular short selling and synthetic shorting through single stock puts, we observe a migration out of single stock puts into the EuroStoxx 50 index options market. We conclude that this type of migration diversified selling pressure initially concentrated in financial stocks across a larger share of the stock market, thereby reducing systemic risks and enhancing overall financial stability.

1. Introduction

On August 11, 2011, Belgium, France, Italy, and Spain imposed short sale bans on financial stocks. The European Securities and Markets Authority (ESMA) stated that the reason for the short sale bans was to curb market abuse and the spread of false rumors[1]. The spread of false rumors is dangerous because it may increase the risk of financial contagion[2], thereby endangering financial stability.

Recent academic studies argue that short sale bans, at best, do not affect stock price levels and, at worst, contribute to their decline and negatively impact market quality. For instance, Boehmer et al. (2013) conclude that it is unclear whether the SEC's 2008 imposition of short sale bans achieved the goal of providing a floor for U.S. equity markets. Beber and Pagano (2013) investigate the impact of the 2008 bans on stock markets in 30 different countries and find that banned stocks underperform stocks not included in the bans.

In this paper, we explicitly take an options market perspective, as opposed to employing only the stock market itself. Our paper focuses on market participants' changes in beliefs and expectations, as in the work of Yan (2011), Chang et al. (2013), and Chira et al. (2013). Forward-looking probabilities implied by options prices, i.e., risk neutral densities (RND), and the implied volatility (IV)

☆ We thank two anonymous referees, Iftekhar Hasan (the editor), as well as seminar participants at IX Seminar on Risk, Financial Stability and Banking of the Banco Central do Brasil 2014 in São Paulo, International Risk Management Conference 2014 in Warsaw, Financial Management Association (FMA) European Conference 2014 in Maastricht, 3rd International Conference of the Financial Engineering and Banking Society—FEBS/LabEx-ReFi 2013 in Paris, VU University Amsterdam and APG Asset Management in Amsterdam for their helpful comments. We thank Markit Securities Finance for providing the data on short stock positions and borrowing costs. We thank APG Asset Management for making available a large part of the additional data set.

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[1] ESMA stated on August 11, 2011: "European financial markets have been very volatile over recent weeks. The developments have raised concerns for securities markets regulators across the European Union. [.] While short selling can be a valid trading strategy, when used in combination with spreading false market rumors this is clearly abusive. [.] Today some authorities have decided to impose or extend existing short selling bans in their respective countries. They have done so either to restrict the benefits that can be achieved from spreading false rumors or to achieve a regulatory level playing field, given the close inter-linkage between some EU markets."

[2] Financial contagion occurs when a relatively contained shock, which initially affects only one or a few institutions, sectors or countries, propagates via larger shocks to the rest of the financial sector, economy or other countries.

http://dx.doi.org/10.1016/j.jfs.2015.10.002
1572-3089/

skew, are used to assess how the ban affects implied jump risk on banned and non-banned stocks. We employ a data set of daily IV across a range of different moneyness levels for all optionable European stocks listed in Belgium, France, Italy, and Spain. We note that using option-implied data is a novel approach in the literature to analyze the impact of short sale bans on financial markets.

We focus not only on the outmost tails of RNDs but also on the tails of realized returns. We argue that it is the more extreme parts of the distributions that best reflect implied jump risk. We use extreme value theory (EVT) to assess how investors, through their perception of implied jump risk, differentiated between banned and non-banned stocks upon the introduction of the 2011 European short selling ban.

Our work is related to that of Melick and Thomas (1997) and Birru and Figlewski (2011) because it examines the behavior of RNDs over specific events. The rationale of using RND and IV skews to assess how the ban affected implied jump risk is also supported by Bates (2000) and Rubinstein (1994). They show that before the 1987 crash, the probability of large negative stock returns was small and fairly close to that suggested by the normal distribution. Just prior to the crash, however, the option-implied probability of jumps rose considerably at the same time that the IV skew became steeper. The left tail of the RND of returns became considerably fatter and thus negatively skewed with increased kurtosis, a phenomenon attributed to crash fear (Rubinstein, 1994). As a result, out-of-the-money (OTM) puts are systematically priced at a higher level relative to at-the-money (ATM) ones.

The main contributions of our paper are threefold. First, we provide evidence that the ban increased implied jump risk levels, particularly impacting the banned financial stocks. We show that it is the imposition of the ban itself that led to the increase in implied jump risk, rather than other causes, such as information flow, options-trading volumes, or stock-specific factors. This finding is important because increased implied jump risk may provoke financial contagion (see Ait-Sahalia et al., 2015) and increase systemic risk. Because of the connection between implied jump risk and contagion, shifts in implied jump risk are closely monitored by regulators[3].

Second, we find that after the announcement of the ban, financial contagion risk actually drops for banned stocks. This finding seems to run contrary to what one might expect, given the documented increases in implied jump risk levels for banned stocks. Interestingly, for the non-banned stocks, we document that contagion risk levels do indeed increase after the ban, thus behaving in line with the rise in implied jump risk levels. We argue that this difference may be caused by (formal and informal) market makers' reluctance to further increase their options' inventory risk, leading to relatively steep IV skews, reduced volumes, and widened bid-ask spreads for banned stocks.

Third, we compare the effects of the 2011 European ban to its 2008 American counterpart. Investors may be able to obtain economic short exposure to banned stocks through a derivatives-based strategy that replicates the payoff of a stock's short sale. Such a "substitution effect" (see Battalio and Schultz, 2011; Grundy et al., 2012) is characterized by a migration of trading volume from one instrument to another. We find that no substitution effect occurred between regular short selling and synthetic shorting through single stock puts during the 2011 European ban. Instead of a substitution effect, our results show a migration out of single stock puts into the EuroStoxx 50 index options market. We conclude that this type of migration diversifies selling pressure initially concentrated in financial stocks across a larger share of the stock market, thereby reducing systemic risks and enhancing overall financial stability.

[3] For instance, Poon and Granger (2003) note that the Bank of England uses implied volatilities to assess market sentiment.

2. Data and methodology

The 2011 short sale ban on financial stocks in the euro member countries Belgium, France, Italy, and Spain was established by a coordinated act of the European Securities and Market Authority (ESMA) and the national financial market regulators of those countries on August 11, 2011. The announcement was made via a public statement issued by the ESMA and was followed by publications on the same day by the Belgian Financial Services and Markets Authority (FSMA), the French Autorité Des Marchés Financiers (AMF), the Italian Commissione Nazionale per le Societá e la Borsa (Consob), and the Spanish Comision Nacional Del Mercado de Valores (CNMV). The ban entered into effect on August 12, 2011. Table 1 provides an overview of the banned financial stocks.

The ban on covered short selling not only prohibited the creation of new net short positions but also banned increases in existing ones, including intra-day operations. Naked short selling had already been prohibited in these four markets since 2008. Positions arising from formal market-making activities were exempted from the ban. The ban targeted not only public markets but also over-the-counter (OTC) markets. In terms of scope, the national announcements differed. The Belgian FSMA announced that the ban applied to net economic short positions of any kind, while the French AMF communicated that derivatives could only be used to hedge, create or extend net long positions. For the Italian Consob, the ban covered only shares and not exchange-traded funds (ETFs) or any derivatives, while the Spanish CNMV imposed the ban on all trades in equities or indices.

During the ban, holders of financial stocks were still allowed to use single stock derivatives or simply sell their holdings to hedge their portfolios. Investors exposed to stocks were allowed to hedge their overall equity market exposure by trading the market index or single stock derivatives. It was the short selling of banned stocks that was prohibited, not hedging them or reducing equity market risk. The creation or extension of marginal net short positions in banned securities as a result of hedging equity market risk was still allowed.

The European short sale ban was initially intended to be in place for the next 15 days only, with the exception of Belgium, which announced that the ban would remain in effect indefinitely. Nevertheless, the ban was extended by the Spanish CNMV, the French AMF, and the Italian Consob several times. On February 13, 2012, both FSMA and AMF announced the lifting of the ban with immediate effect in Belgium and with retroactive effect, to February 11, in France. On February 15, the CNMV announced the lifting of the ban from February 16 onwards, and on February 24, the Italian ban expired.

Our sample covers the period from February 15, 2008, to March 27, 2012, and includes 1,073 trading days. It consists of all stocks that had listed options as of February 2012 on the Belgian (Brussels Stock Exchange/Euronext Brussels), French (Paris Bourse or Euronext Paris), Italian (Milan Stock Exchange or Borsa Italiana), and Spanish (Bolsa de Madrid) stock exchanges. Overall, our sample comprises 185 stocks, of which 105 are included in these stock exchanges' main indices, i.e., the Belgian BEL20, the French CAC40, the Italian MIB, and the Spanish IBEX35.

From Bloomberg, we source daily trading volumes and the number of shares outstanding per stock, trading volumes, and put-call volume ratios for listed options. Trading volumes for listed puts on the EuroStoxx 50 index, the V2X index (the IV index from the EuroStoxx 50 index), and generic series of five-year sovereign credit default swaps (CDS) for Belgium, France, Italy, and Spain are also