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Impact of Regulation on Trading in Financial Derivatives in Europe

H. Florianová, J. Nešleha

Abstract**—**Financial derivatives are considered to be risky investment instruments which could possibly bring another financial crisis. As prevention, European Union and its member states have released new legal acts adjusting this area of law in recent years. There have been several cases in history of capital markets worldwide where it was shown that legislature may affect behavior of subjects on capital markets. In our paper we analyze main events on selected European stock exchanges in order to apply them on three chosen markets - Czech capital market represented by Prague Stock Exchange, German capital market represented by Deutsche Börse and Polish capital market represented by Warsaw Stock Exchange. We follow time series of development of the sum of listed derivatives on these three stock exchanges in order to evaluate popularity of those exchanges. Afterwards we compare newly listed derivatives in relation to the speed of development of these exchanges. We also make a comparison between trends in derivatives and shares development. We explain how a legal regulation may affect situation on capital markets. If the regulation is too strict, potential investors or traders are not willing to undertake it and move to other markets. On the other hand, if the regulation is too vague, trading scandals occur and the market is not reliable from the prospect of potential investors or issuers. We see that making the regulation stricter usually discourages subjects to stay on the market immediately although making the regulation vaguer to interest more subjects is usually much slower process.

Keywords**—**Capital markets**,** financial derivatives, investors' behavior, regulation.

I. Introduction

FINANCIAL derivatives are currently very popular investment tools of capital markets. They are used for investments, speculation, and hedging. However, for understanding their features our knowledge must be advanced. According to their complexity derivatives often contribute to creation of speculative bubbles, deepen financial crises and cause considerable losses to retail investors. It is thus apparent that field of trading in financial derivatives should be carefully watched and regulated. Otherwise undesirable affairs may occur on the markets. On the other hand, regulation should not be too strict because then it causes rigidity of markets which is considered to be very unfavorable. The question is how different stages of regulation affect trading in derivatives and what should the regulation be like. We have evidence from the past decades that change in regulation may affect subjects' behavior.

In recent years many new types of financial derivatives arose. Area of capital market is dynamic and legislation in this case drops behind because changes take time. The derivatives traded on Deutsche Börse are futures, options, warrants and certificates. On PSE, we can find warrants and certificates. In the past futures were traded as well. In some countries derivatives are regulated as hazard games. This is expressly excluded in Czech and German law. The law of capital market, and thus trading in derivatives, is classified as a part of non-fiscal financial law, which is a part of the legal relationships formed, fulfilled and coming to an end within the monetary system. These relationships are supervised and surveilled by public authority – Czech national bank in the Czech Republic, Federal Financial Supervisory Authority in Germany. The reason for state interventions is to secure economic stability and protection of its subjects, especially consumers. The aim of regulation is to preclude risks related to dealings on capital markets. These risks are in particular asymmetric information, loss of entrusted capital and unprofessional management of entrusted capital. Asymmetric information is eliminated by the mandatory publishing of substantial information. Loss of entrusted capital is eliminated by state supervision and rules to enter the capital market. Unprofessional management of entrusted capital is eliminated by restriction of authorized investment services, rules for insider trading etc.

H. Florianová and J. Nešleha are with the Masaryk University, Faculty of Business and Administration, Department of Finance, Lipová 41a, Brno, 602 00 Czech Republic (e-mail: hanaflorianovaa@gmail.com, josef.nesleha@econ.muni.cz).

II. Literature Review

There are debates about the issue if regulation may in fact affect trading. Some authors are skeptical despite the fact that we know that in history (mainly in 1990's) many affairs occurred on stock exchanges where this impact was apparent. According to Bertin [2] legislation caused outflow of investors from Paris Stock Exchange (PaSE). In the beginning of its existence PaSE set very strict rules of derivatives listing. Major impact had the rule that if an issuer plans to issue a warrant with shares as an underlying asset he/she has to have official written permission from the affected company. In reality when issuer asked for such document, company usually did not provide this document or it took a long time. Hence, derivative market was paralyzed and its subjects quickly lost intention to trade on PaSE and move to other stock exchanges. PaSE reacted promptly though and liberalized the rules of trading. Newly there was no need of permission to issue which changed to announcement of issuer delivered to affected company [1].

Having mentioned moving of investors to different stock exchanges, this trend was also described by Berney [1] who found out that majority of the investors moved to Kayman

Islands Stock Exchange (KISE). KISE was rather liberal in terms of regulation and its initial growth was rapid. The main advantage was that issuers did not need any broker to issue derivatives implying lower transaction costs. On the other hand, there were some important rules to prevent scandals and trading affairs which could possibly discourage potential investors. It was necessary to have a license from market regulatory institution, strong financial background and so on [2].

The opposite approach to regulation was chosen in the beginning of the existence of Shanghai Stock Exchange (SSE). Chen and Liao [4] analyzed it closely. SSE was not regulated at all. It was not liquid which caused enormous fluctuations in derivatives prices. Slowly there were more and more scandals in trading and speculation. At the end SSE was closed, reformed and reopen. After reopening it faced mistrust from investors but quickly became one of the leaders of derivative markets in the world [3].

The case of Australian Stock Exchange (ASE) was examined by Nealon [6]. Interesting phenomenon arose there. Option market was insured against default by law and its trading system was advanced and user friendly. Warrant market was not insured and its trading system was underdeveloped. But warrant market had some advantages which option market had not. For example, everyone who could trade on stock market could trade on warrant market automatically whereas on the option market special permission was needed. The conclusion was unexpected - despite that option market had indisputably more advantages, investors preferred the few advantages of warrant market, which were lower transaction costs and avoiding bureaucracy [4].

III. Capital Markets History Context

For the purpose of this paper we analyze Czech and German regulated capital markets which are for this purpose represented by their stock exchanges, Prague Stock Exchange (PSE) and Deutsche Börse. The letter is the biggest stock Exchange in Europe in terms of trading in derivatives regulated by civil (continental) law. In opposite, PSE is not very developed yet. The hypothesis stated is „Different legislation of chosen states has different impact on trading in financial derivatives."

Historical background of capital markets is very different for Czech and German market. In the Czech Republic, modern stock exchange was founded in the end of the 19th century. Its development was decelerated by world wars and then it was intercepted for 50 years when communist party began to rule the country. Therefore, trading in derivatives started in early 2000's. In Germany, history of capital market goes to the 12th century, when Frankfurt Stock Exchange (FSE) was founded. Development was also interrupted by world wars. After that the doors were open. Unfortunately, government did not pay attention to capital markets and was focused only on banking sector. Capital markets were self-regulated and did not perform very well. The major positive effect had reforms of the new government in the end of 1990's.

The process of reopening of PSE was not very successful. It was affected by several factors. Firstly, coupon privatization executed very poorly. Almost each and every state company was prepared to be transformed into joint-stock company and its shares were publicly offered on PSE for the same price - 1000 CZK with no argumentation or real conception. Legislation was prepared only for the purpose of privatization and after that it does not function for the stock exchange anymore. Actually, they functioned as barriers. On the top of that new act on collective investment was issued. According to Ježek [5] this act was the most serious problem of the development of Czech capital market. It allowed owners of mutual funds to slowly loot them and leave investors with empty hands.

Czech capital market has been successfully regulated since 1998 when the Act of Comission of Securities was released. But in the shade of past scandals subjects did not rush to PSE. It also prolonged the time when derivatives were introduced on PSE for the first time. In 2006 existence Comission for Securities was terminated and its competences were transferred to the Czech National Bank. Situation could be considered to be stabilized since then [3].

Other changes came with the accession to the European Union (EU) in 2004. European legislation had to be incorporated into Czech legal system and therefore many new legal acts were adopted.

IV. Trading in Derivatives in the Czech Republic and Germany

Both PSE and Deutsche Börse use trading system Xetra. On PSE, there are traded just two types of derivatives – warrants and certificates. In recent years, futures were also traded, but nowadays they are not. Deutsche Börse is divided into two parts, first is called Eurex, where options and futures are traded, and Frankfurt Stock Exchange (FSE), where warrants and certificates are traded. If we make analysis on behavior of subjects on capital markets, we should separate issuers and investors. The popularity of a market from issuer's point of view may be compared on the base of issued and listed derivatives on particular stock exchange. The popularity of a market from investor's point of view may be compared on the base of traded volumes of derivatives on particular stock exchange.

A. Issuers of Derivatives on Capital Markets

On PSE, number of listed derivatives oscillates around 100, on Deutsche Börse the number of listed derivatives grows exponentially and it reached total of more than 1.6 million. In Fig. 1, we see total number of listed derivatives on PSE and Fig. 2 shows the total number of listed derivatives on Deutsche Börse.

There is a strong growth trend on Deutsche Börse, which was slowed only at time of financial crisis in 2008, but it reached pre-crisis numbers around year 2011. On PSE, no trend is observed. The number of listed derivatives oscillates between 40 and 100 listings.

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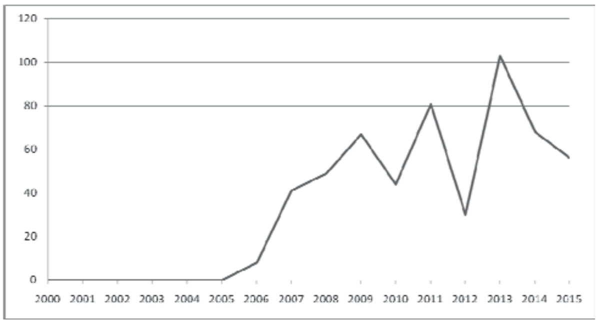

Fig. 1 Number of derivatives listed on Prague Stock Exchange

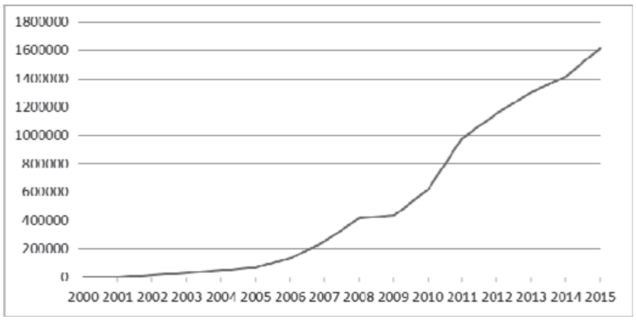

Fig. 2 Number of derivatives listed on Deutsche Börse

If we compare number of newly listed derivatives in particular years, we state that statistics are available only for structured products (that means warrants and certificates). Interesting fact is that on FSE no new listings are realized. The number of new listings on PSE is shown in Fig. 3.

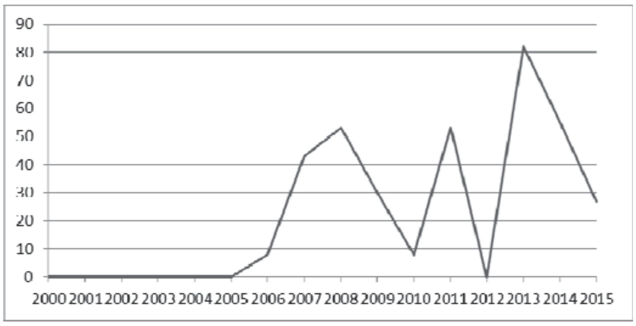

Fig. 3 Number of newly listed structured derivatives on Prague Stock Exchange

The amount of newly listed structured derivatives oscillates between 0 and 80 per year. Bottoms were in years 2010 and 2012, tops in years 2008, 2011 and 2014. We see that financial crisis 2008 did not affect it negatively.

Figs. 1 and 3 show that growth of traded derivatives in the Czech Republic started after year 2004, which is also a year of the European Union accession which brought broad changes of legislation.

B. Investors on Capital Markets

Trading volumes of derivatives on PSE reached over 20 billion Euros past year. That is only a fraction of 93 000 billion Euros which was traded on Deutsche Börse. Development of trading volumes is captured in Fig. 4.

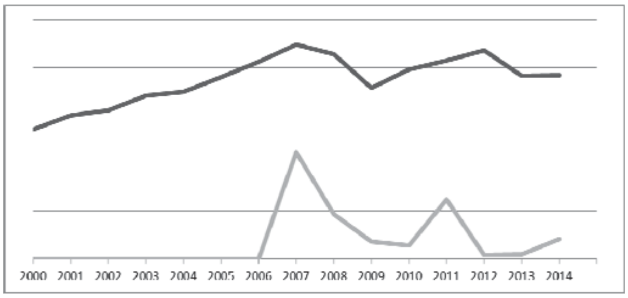

Fig. 4 Trading volumes of derivatives on Deutsche Börse (black line) and Prague Stock Exchange (grey line)

We observe linear growing trend on Deutsche Börse with two downfalls in 2008-9 and 2013. There is no visible trend on PSE, but similarly to Deutsche Börse, we observe two downfalls in 2008-10 and 2012.

V. Relationship between Legislative Changes and Trading in Derivatives

Subject's behavior towards investing in derivatives on regulated markets has two dimensions. First scenario is a significant deterioration in trading conditions. In that case, investors and issuers leave the market without hesitation and start trading on other stock exchanges with more liberal rules. The main factor for investor's decision is laziness and thrift. Investors (especially retail investors) are not willing to undertake long bureaucratic procedures more times than necessary. Subjects also try to find as low transaction costs as possible. Hence, if transaction costs on the particular market rose, subjects would find cheaper possibility somewhere else.

Second scenario is a significant improvement in trading conditions. That case takes much longer time than the first one. Subjects come to the market slowly. It may be caused by the fact that they already trade on other market and do not want to go through bureaucratic procedures again.

Although there is evidence of correlation between regulation and trading, it cannot be proved on the Czech and German market. In the monitored period there were no significantly stricter regulations accepted, therefore there was no need to leave the market. Moreover, if some rules were stricter, it happened as prevention after worldwide crises which means rules were accepted worldwide.

In the Czech Republic, which suffered from communist establishment and experienced an abortive coupon privatization followed by several financial scandals, subjects of capital markets are rather distrustful. Hence, regulation of the EU is seen as some kind of guarantee attracting investors and issuers to trade. The Czech Republic has been a member state of the EU since 2004. It had to harmonize legal acts with directives. Since then trading in derivatives is on the rise.

In Germany is a historical context much smoother. The government of Germany was focused more on the banking sector than on capital markets. Due to this negligence, German capital market was not transparent. Moreover, central bank as a supervisor was mainly focused on monetary policy, regulation of capital markets was too strict and therefore investors preferred investing in Great Britain or Luxembourg. The main change in regulation was brought by new government elected in 1998. At the turn of millenniums several important legal acts on capital markets were adopted and since then capital market in Germany has grown.

VI. Conclusion

This paper deals with the relationship between trading financial derivatives and regulation of the capital markets. Legislature must be careful when preparing new legal acts because if the regulation is too vague, speculative scandals occur and investors and issuers lose trust in such a market. On the other hand, if the regulation is too strict, it makes the market rigid and illiquid and investors and issuers prefer other markets. Evidence from several stock exchanges was presented. Afterwards we tried to find, if something similar happened to Prague Stock Exchange or Deutsche Börse. The major changes in legislation in the Czech Republic were in early 1990's when former communist regime was over and market economy was something completely new. Other major changes were brought by the European Union in 2004. Main changes in Germany came from the change in government in 1998 and new legal acts from the beginning of millennium. Also, the role of financial crisis 2008 is undeniable.

The behavior of issuers and investors was observed on time series based on total number of listed derivatives, newly listed derivatives per year and trading volumes.

It is important to distinguish between making the regulation stricter or vaguer. If it becomes stricter, subjects of capital markets leave the market and go somewhere else and it is a quick process. If the regulation becomes vaguer, subjects comes to the market, however, it is much slower process.

Subjects of financial markets are generally lazy and thrifty. They prefer to avoid bureaucritical procedures and high transaction costs.

Acknowledgment

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