Dániel Horváth, Zsolt Kuti and Imre Ligeti: Is the CDS spread still a reliable risk indicator? The impact of the European regulation on uncovered CDS positions on market developments in the Central and Eastern European region*

Our article discusses the 2012 European Union regulation on naked CDS positions[1] and its effects on CDS market developments in Central and Eastern European EU Member States. Although following the adoption of the regulation in March, an adjustment period of nearly seven months was available until it became effective, in the emerging European markets a considerable proportion of actors reacted to the changes only relatively late, in the first half of October. The concentrated closing of short CDS positions within a short period of time significantly reduced the CDS spreads of the countries in the region. We examined this direct effect and found that as a result of the regulation itself, both the average regional and the Hungarian CDS spread shifted 50 basis points downwards, with the resulting difference proving to be permanent. This shift makes the comparison of CDS spreads more difficult both in cross-sectional and in time series terms. At the same time, we are of the opinion that the dynamics of CDS spreads may provide good guidance regarding the shifts in individual countries' risk perception even after the regulation came into force on 1 November.

INTRODUCTION

In the past decade, credit default swaps (CDS) have become extremely popular among market participants. The essence of these transactions, which can be used for risk management, hedging and speculative purposes, is that the issuer of the CDS provides insurance against the default of the issuer of a debt security for a specific, regular fee. The fee paid by the buyer of the CDS is called the CDS spread. As the developments in CDS spreads follow the probability of default of the issuer (companies, states) of the insured product, the spread has become one of the most important indicators of risk assessment in recent years.

During the crisis that broke out in 2007, several EU Member States introduced restrictions on short positions,[2] as it occurred that in extreme situations speculative use of assets may exacerbate market panic, and by increasing financing costs it may in itself add to the probability of default. In March 2012, the European Council decided to introduce a community-level regulation to harmonise individual countries' similar legislation. Prior to the entry into force of the regulation in November 2012, intensive restructuring took place in the volume and spread indicators of the CDS market, suggesting that the regulation itself may have had an impact on the spreads. As this shift cannot be interpreted as a real change in risk assessment, in the article it is referred to as the 'technical effect'.

First, our article provides a brief overview of the most important details of the regulation, followed by a presentation of its impact on the developments in regional CDS spreads and market activity. After this, simple econometric methods are used to estimate to what extent the regulation – *ceteris paribus* – influenced spreads. This is followed by the discussion of some dilemmas related to the regulation, and finally we draw the conclusions.

* The views expressed in this article are those of the author(s) and do not necessarily reflect the offical view ot the Magyar Nemzeti Bank.

[1] European Council: Regulation (EU) No 236/2012 of the European Parliament and of the Council of 14 March 2012 on short selling and certain aspects of credit default swaps: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:086:0001:0024:en:PDF.

[2] A market player holds a short position regarding a financial asset if the value of his position increases if the asset depreciates. For example, the CDS is suitable for building a short position that is profitable in the case of a fall in the prices of an issuer's bonds.

DETAILS OF THE REGULATION

General observations on the EU regulation on short selling and credit default swaps (CDS)

During the financial crisis that developed after September 2008 and the financial market turbulence which strengthened again as a result of the debt problems of the euro area, EU Member States introduced various measures to restrict short securities transactions. In 2010, European decision-makers began to agree on the need to create a single, community-level regulatory framework dealing with short sales. The primary objective of the harmonisation effort was to make the varying regulatory solutions in the different Member States efficient, to increase transparency in relation to holding short positions in certain securities and to facilitate coordination among Member States, whilst also allowing Member States to act in unison regarding the measures to be introduced in the case of exceptional circumstances that may occur in the future.

In addition to the regulation related to short securities transactions (limiting short equities transactions and government securities transactions, notification obligation concerning net short positions), the Council Regulation announced on 24 March 2012 and the Commission regulations setting forth the technical details also institute a prohibition on taking uncovered CDS positions.

On the regulation of uncovered CDS transactions

Our analysis is focused on the part of the EU regulation that concerns CDS transactions and on its effect; therefore, the rules created in connection with the CDS positions are described in more detail. The regulation basically prohibits the taking of uncovered sovereign CDS positions, i.e. cases when opening a CDS position does not occur for the purpose of hedging a natural long position held vis-à-vis the underlying entity. The prohibition applies to CDS transactions concluded after 25 March 2012, i.e. following the entry into force of the Council Regulation. Existing transactions qualifying as uncovered pursuant to the spirit of the Regulation may be maintained until expiry of the relevant contracts. However, pursuant to the regulation of the European Commission, the Regulation only entered into effect as of 1 November 2012, meaning that market participants had a nearly 7-month grace period to adjust to the rules. The prohibition on taking uncovered positions applies to each CDS referencing EU Member States or supranational organisations as well as the CDS index concerning sovereigns, irrespective of the location of concluding the CDS transaction and the residence of the natural person or legal entity that concludes the transaction.

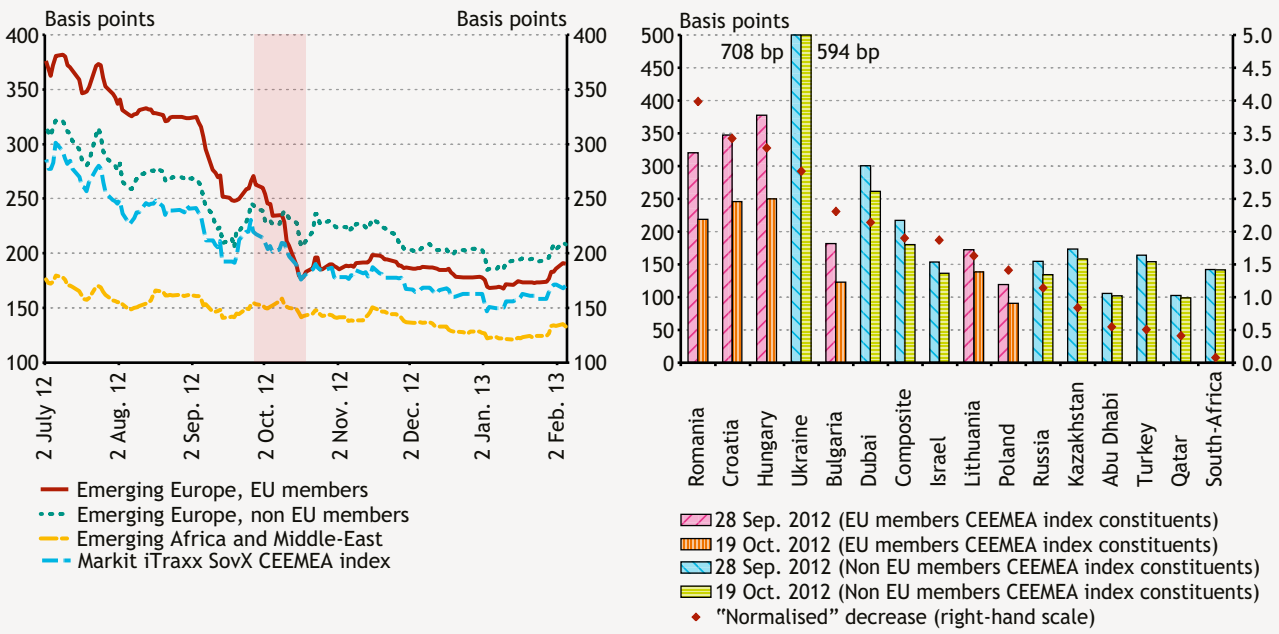
However, pursuant to the Regulation, the hedging of exposures to certain types of assets and liabilities by sovereign CDS purchases is not considered as taking uncovered CDS positions. This pertains to corporate exposures where the success of the activity of a company depends directly or indirectly on the EU sovereign or a group of sovereigns. In the case of indirect exposure (for example, a company invests in government securities of another Member State), a close correlation between the value of the assets of the company and the price of the government security must be proven by a correlation test. If a strong correlation exists, the exposure to the company can be covered with the CDS referencing the issuer of the government security held by the company. Direct corporate exposure arises, for example, when the majority owner of the company is an EU Member State. In this case, upon purchasing the CDS used for hedging the exposure to the company, the Regulation considers a strong correlation to automatically exist.

The Regulation also clarifies the issue of proportionality between the asset/liability intended to be hedged and the CDS as means of hedging. Regarding duration, the governing rule is that, also taking account of market conventions and liquidity conditions, the duration of the hedged asset and that of the CDS should be as close to one another as possible. In practice, this means that a 10-year sovereign government security can be hedged by the rolling of a CDS with a maturity of 5 years, and in parallel with that a market participant may also hedge a 2-year government security with a 5-year CDS, provided that he also closes the CDS position upon the maturity or sale of the government security. With regard to the sizes of positions, the Regulation distinguishes between static hedging to be applied in the case of direct exposures related to government securities and dynamic hedging used in the case of indirect exposures. In the former case, the nominal value of the CDS position may not exceed the nominal value of the asset to be hedged, whereas in the latter case not only the duration, but the sensitivity of the given asset must also be taken into account upon comparison of the positions.

IMPACT OF THE CDS REGULATION ON CDS SPREADS IN THE REGION

The EU regulation prohibiting uncovered CDS positions had a major impact on both market spreads and volumes. Although the grace period for closing the uncovered transactions could have allowed a smooth transition, analysis of CDS market data suggests that a portion of the closures was concentrated in the first half of October, i.e. close to the date of the Regulation becoming effective (1 November 2012). As a result, Central and Eastern European

Chart 1
Changes in spreads in the three country groups of the CEEMEA region (left panel) and in the countries monitored in the CEEMEA index (right panel)



spreads deviated spectacularly from the spreads of other regions.

One of the most obvious ways of examining the technical effect on CDS spreads is a comparison of the CDS developments in the EU Member States of the region with the CDS developments in emerging countries that are similar, but not affected by the Regulation. Decomposition according to geographical regions of the changes in Markit's (5-year) CDS index that comprises the countries of the CEEMEA region is a suitable tool for undertaking such a comparison. The three well-distinguishable regions[3] are constituted by units comprising the EU Member States, emerging countries outside the EU but geographically belonging to Europe and the states belonging to the African/Middle Eastern region.

Using the weights included in the index allows the calculation of how the composite spreads of the three regions changed over the recent period. Our analysis focuses on the events of the past three quarters. Overall, market sentiment in the countries of the region was influenced not only by the CDS regulation, but by several other important events as well. Of them, the EU Summit at end-June 2012, the statements by the President of the ECB that stabilised the markets in the summer, the ECB's September decision on the – conditional – purchase of the government securities of periphery countries and the launch of the Fed's QE3 programme in September also deserved special attention. All of these events resulted in a fundamental improvement in global investor sentiment, and through that in the assessment of emerging regions. Looking at the developments in CDS spreads, the immediate effect of the above favourable events was perceived until mid-September, followed by some stagnation. Until that period, the spreads of the three country groups of the CEEMEA region followed practically the same dynamics, adjusted for sensitivity to market shocks (left panel of Chart 1).

In the first three weeks of October, however, remarkably different trends were observed: while the spread of the EU Member States included in the composite index fell sharply, the average spread of the other two country groups only tended to stagnate or the decline was much less significant.

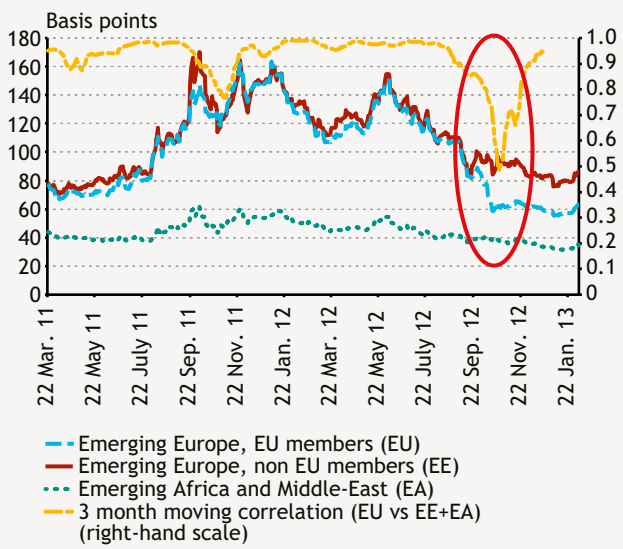
[3] Grouping of the countries monitored in the Markit iTraxx SovX CEEMEA composite index: **European Union:** Bulgaria, Poland, Lithuania, Hungary, Romania, Croatia (In our survey we saw that – presumably because of its forthcoming EU membership – the behaviour of Croatia was similar to that of the other EU Member States, so it was classified into this group of countries in our analysis. However, due to the low weight of the country, this does not have any material effect on our findings.); **Emerging Europe:** Kazakhstan, Russia, Turkey; **Emerging Africa:** Abu Dhabi, South Africa, Dubai, Israel, Qatar.

In fact, analysts started to focus on this phenomenon as of mid-October, when several major institutions[4] published detailed analyses, calling attention to the fact that the – disproportionately large – decline in the spreads of the EU Member States of the region was presumably related to the closing of open uncovered CDS positions. After the Regulation became 'live' on 1 November, the developments in the three groups of countries were more characterised by co-movement again. All this meant that the average spread of EU countries remained permanently below the level of other emerging European countries.

It is worth examining the changes in the aforementioned period at the level of individual countries as well. The right side of Chart 1 depicts the decline in the spreads of the countries included in the CEEMEA composite index in the first half of October, presenting the shift in absolute levels and 'normalised' as well.[5] The application of the latter allows the exclusion of the distorting effect that countries with higher nominal spreads respond to one unit of shock with a larger price change.[6] It is clearly visible from the chart that EU Member States significantly overperformed in the period under review. The greatest relative declines in spreads were observed in Romania, Croatia and Hungary; in these countries the decline in spreads was 3.5–4 times greater than the average two-week decline.

The question arises as to whether the considerable decline in spreads in the EU Member States of the region was related merely to the crisis management of the euro area. It is conceivable that the improving assessment of the monetary union mostly concerns the EU Member States in the CEEMEA region. However, this is contrary to the fact that the deviations experienced across spreads evolved only as of early October, i.e. well after the announcement of the critical measures in the summer and at the beginning of September. This is well illustrated by the rapid fall in the correlation coefficient between the composite spreads of EU Member States and the other two country groups (Chart 2). Apparently, both the size and the continuity of the decline in the coefficient were unprecedented in the previous two years. After hitting bottom in mid-October, the correlation started to strengthen again, and by end-2012, when the critical period was not included in the moving time interval any longer, the correlation coefficient returned to its earlier high level.

Chart 2
Correlation of the CDS-spreads of the country groups included in the CEEMEA index



IMPACT OF THE CDS REGULATION ON MARKET VOLUMES

The EU regulation may have had an impact on the decline in spreads observed in the first half of October through two channels simultaneously. Firstly, as a result of the sudden oversupply, the mass, forced termination of positions may have had a price reducing effect. Secondly, merely the expectation that the loss of a portion of the demand for CDS transactions would result in a permanently lower demand for the product may have prompted market makers to adjust their quotations downwards. The contributions of the two channels to the decline in spreads may have varied across Member States. The quantitative effect may have primarily been stronger in the countries that have an active and significant market, where the narrowing of the CDS spread may have been triggered by an activity with a higher than usual volume, aiming at the termination of positions.

It is worth examining the impact of the EU regulation on the quantitative indicators of the European CDS market on the basis of the data of the Depository Trust and Clearing Corporation (DTCC).

[4] Of the analysts followed by us, Barclays was the first to deal with the subject in detail, when it published its relevant paper on 19 October (Barclays, 2012). However, within a short time J.P. Morgan, Credit Suisse and Commerzbank also published similar analyses (J. P. Morgan, 2012; Credit Suisse, 2012; Commerzbank, 2012).

[5] The 'normalised' decline was calculated by taking the ratio of the decline in spreads between 28 September and 19 October 2012 to the two-week average (absolute) change experienced in the first three quarters of 2012. Demonstrating it on the example of Hungary it means that the value of 3.27 shown in the chart is the quotient of the 128 basis point decline that took place during the period under review and the average two-week change of 48 basis points.

[6] Kocsis and Nagy (2011).

Box 1
Key terms related to the quantitative indicators of the CDS market

The **Depository Trust and Clearing Corporation (DTCC),** a clearing house operating in the United States, has published CDS market aggregate position data on a weekly basis since 2008, where, in addition to the indices, the most detailed information can be accessed regarding the top 1,000 single name entities with the highest turnover.

Gross notional: The sum amount of all outstanding open CDS transactions (calculated at nominal value) concerning a single reference entity.

For example: Participants 'A' and 'B' conclude a CDS transaction regarding sovereign 'S' at a nominal value of USD 5 million through dealer 'D'; where 'A' is the seller in the transaction between 'A' and 'D', and 'B' is the buyer in the transaction between 'B' and 'D'. In this case, the gross notional volume increases by the sum of the two 5-million dollar transactions, i.e. by USD 10 million.

Net notional: The sum amount of net CDS protection (calculated at nominal value) bought by new buyers, regarding a single reference entity. This indicator shows the maximum net flow of money between market participants upon the occurrence of a credit event relating to the particular reference entity specified in the CDS contract. Participants' total net exposure is best captured by the net notional.

For example: In the above example, dealer 'D' concludes transactions in both directions, so his position remains unchanged; the net position of participant 'A' increases with the purchased CDS of USD 5 million, while the net position of participant 'B' changes with the sold CDS of USD 5 million. In this case, the aggregate net notional increases by a total USD 5 million. In the CDS market, end-user participants usually conclude transactions with dealers, who often continue to conclude these transactions among one another, multiplying the number of transactions. Accordingly, the net notional typically amounts to only a fraction of the gross notional.

Market risk transaction activity indicator: This indicator takes into account – in gross terms – the transactions (new trades, termination of an existing transaction, assignment of a leg of an existing CDS contract to a third party) that aim at changing the risk position of the individual participants. The indicator does not include transactions stemming from central counterparty clearing and portfolio compression or maturing transactions, as the first two do not change participants' risk positions, whereas maturity is not an active market event.

For example: If in the above example participant 'A' wants to close his position: 1) he may conclude a transaction with a nominal value of USD 5 million in the opposite direction with 'D'; 2) 'A' and 'D' may terminate the already existing contract with mutual agreement before maturity; 3) participant 'A' assigns the seller position of the contract between him and 'D' to third end user 'E', and thus the original contract remains, but from then on participants 'D' and 'E' are on the two sides of the deal. CDS market activity increases in these cases. If the position of player 'A' closes as a result of maturity, it will not appear in the activity indicator.

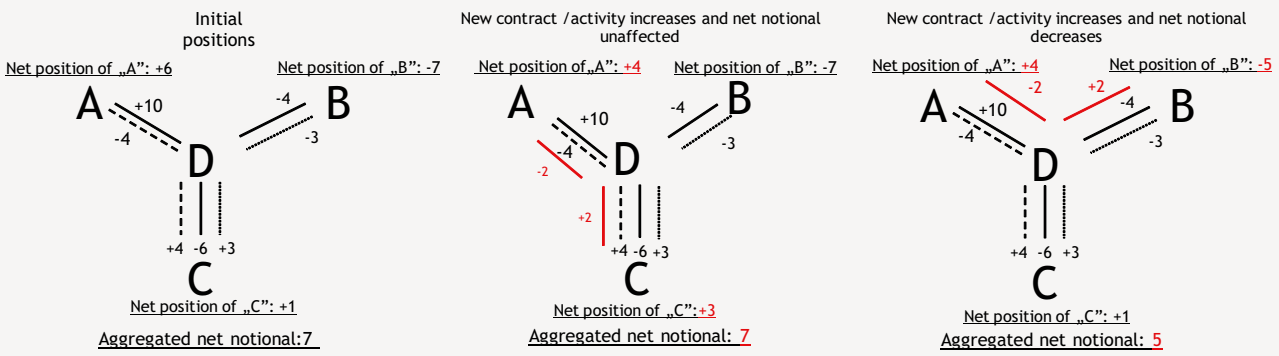
How can conclusions regarding forced position closing be drawn from developments in quantitative indicators?

Drawing conclusions regarding the forced termination of uncovered CDS positions is possible only in an indirect manner, on the basis of a joint examination of net notional and activity indicators. The following can be established concerning the connection between the two indicators: market activity may modify the net notional in any direction, but from the other side, while an increase in the net notional volume requires market activity in any case, a decline in net notional does not necessarily mean an active closing of positions: the maturities of transactions in themselves may result in a decline in notional volume.

If a participant intends to terminate his net short CDS position (as he may have been forced to do so pursuant to the Regulation), it entails a decline in the net notional only if no other market participant is willing to assume the given short position (in net terms) (middle panel, Chart 3).

The surge in the activity indicator already suggests that forced, concentrated position closures due to the entry into force the Regulation took place, as it shows an unusual, major rearrangement in market participants' risk positions. If, however, we see that in parallel with the surging activity

Chart 3
Possible impact of concluding a new transaction on the aggregate net stock in a simplified market with three participants



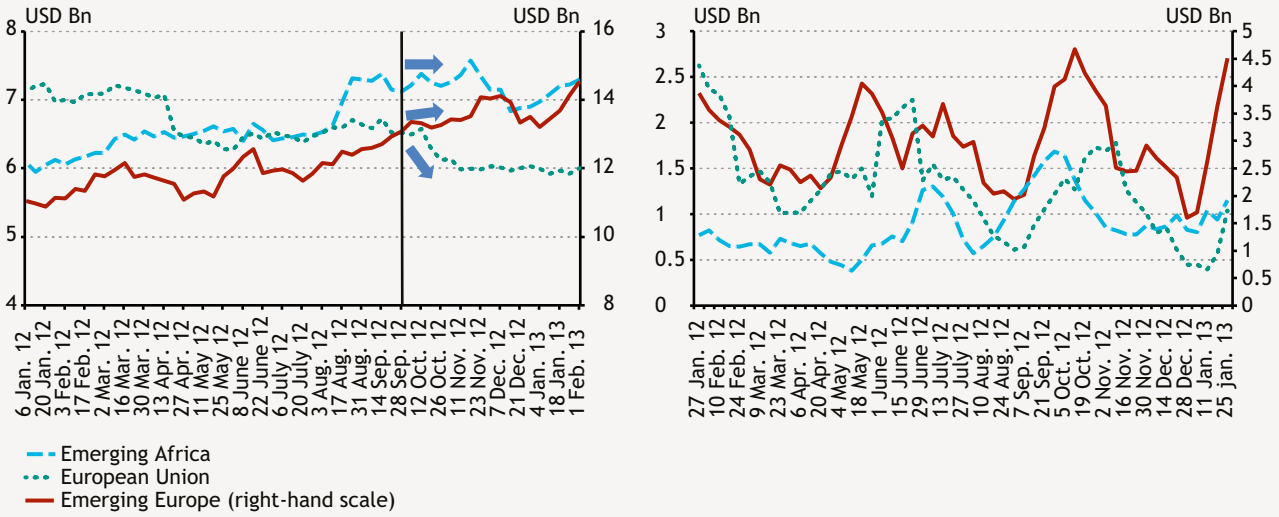
there is also an intensive decline in net notional, and this decline is not caused by maturities, we can come to the conclusion that on the demand side, with the elimination of the segment that has built up the uncovered position, the buyer's side was dominated by the end users who originally had a net seller's position, and not by the participants that originally had a net buyer's position (and intended to hedge).

The forced position termination due to regulation is typically a situation when no change takes place in the comprehensive market assessment of the fundamentals, but certain participants still want to close considerable amounts of their positions. In this case, end-users are willing to enter the buyer's side of the CDS market only at lower prices, and thus dealers are compelled to reduce the spreads. Then the participants that originally had long credit positions can close their positions by purchasing the CDS whilst realising profits.

Quantitative changes in the Eastern European region

Analysis of the quantitative data of the countries in the region reveals different trends in terms of the net CDS volumes across the geographical regions in the critical month of October: in parallel with the decline in net notional of EU Member States, net notionals in the African and Middle Eastern regions were rather stagnant, while they increased in the European countries outside the EU. As the DTCC data release does not show maturities for October (as opposed to, for example, the 2.2 billion maturity in gross terms observed on the week ending 20 April 2012; Chart 4), the decline in net notional was the result of the closure of a portion of existing transactions.

Chart 4
Changes in net CDS notional for the countries included in the Markit ITraxx Sovx CEEMEA index series in a breakdown by regions (left panel). Aggregate activity indicator of the countries included in the Markit ITraxx Sovx CEEMEA index series (4-week retrospective moving average) in a breakdown by regions (right panel)



This is also suggested by the activity indicator of the East European EU countries, which also indicates elevated activity in October, similarly to the aggregate for the EU as a whole (see the relevant box). At the same time, it is worth noting here that of the CDS markets of the countries included in the CEEMEA index only some can be considered active.[7] Therefore, it may happen that as a result of the technical effect of the regulation, the differences expected in quantitative developments between individual CEEMEA regions are less pronounced due to the individual factors. From the other side, in turn, the decline in the EU CEEMEA net notional in October was mostly related to Hungary, and essentially it was also the Hungarian and Polish markets where the activity indicator increased considerably. Accordingly, the conclusion can be drawn that – contrary to West European EU countries – in the East European region the price reducing effect of the regulation was more dominant through the expectation channel.

Box 2

Effect of the regulation prohibiting uncovered CDS positions on CDS market volumes in the EU

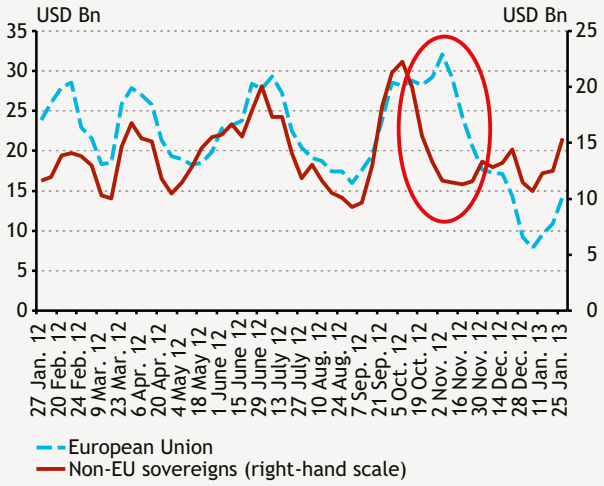
We came to the conclusion above that in the case of Central East European EU Member States the CDS regulation had a stronger effect on spreads through the expectation channel. At the same time, in the EU as a whole (mainly as a result of the much larger market) the closing of positions also had a pronounced direct impact.

Examination of the aggregate net CDS notional of EU sovereigns reveals that although a decline was observed in the first half of the year as well, the process really accelerated as of the second half of the year, i.e. from early August. Presumably, in addition to the regulation, the favourable reception of the euro area crisis management measures by the market also played a significant role in the decline in the net EU CDS notional. Nevertheless, the different dynamics of the decline in net notional in the countries belonging to the periphery and the core of the euro area as well as the dissimilar trends observed in the activity indicators of EU and non-EU sovereigns make the market influencing effect of the regulation perceptible. Except for the month of October, in terms of dynamics[8] the aggregate activity indicator of EU and non-EU sovereigns mostly moved together in 2012. At the same time, while in October the level of the non-EU indicator declined, the end-September high activity continued within the EU. As the decline in net notional was not related to the extreme number of maturities in this period, the conclusion can be drawn that the regulation resulted in concentrated position closures. Another message of the indicator is that after the regulation entered into force, market activity within the European Union sank below the level typical of the previous years, which may indicate falling demand due to the prohibition on taking uncovered positions.

Chart 5

Changes in the aggregate activity indicator of EU and non-EU sovereigns

(four-week retrospective rollover average)



ESTIMATE FOR THE MAGNITUDE OF THE TECHNICAL EFFECT OF THE CDS REGULATION

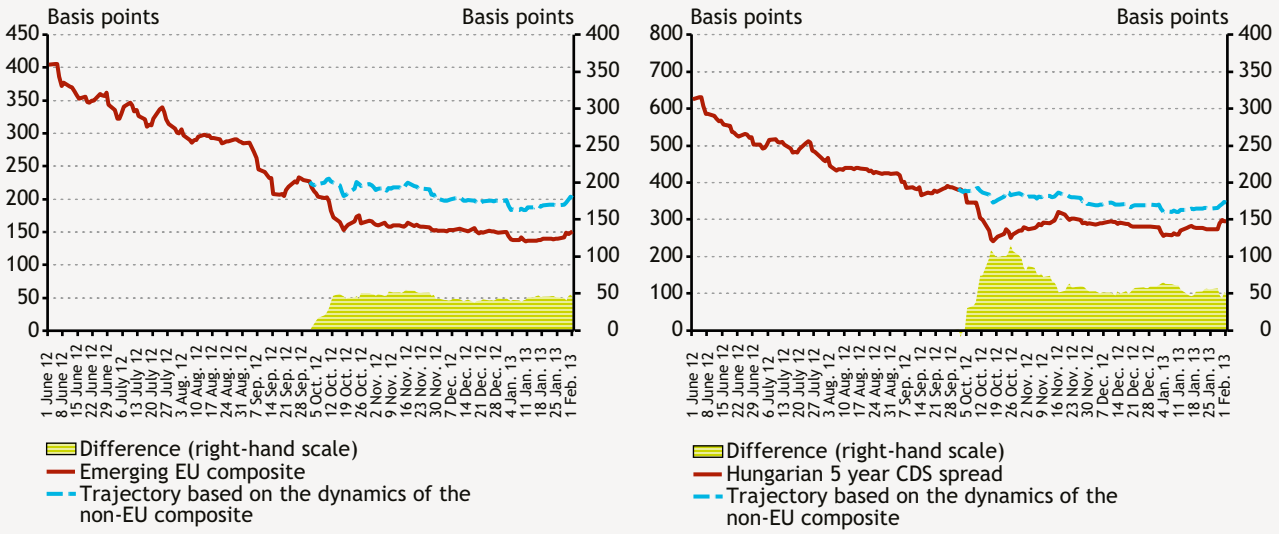
As described above, in October 2012 the CDS market developments in the EU Member States in the region deviated from the trends observed in other emerging countries, which, considering the previous strong correlation, indicates that the regulation applying to the EU sovereigns had a material impact on the market. In this section, we attempt to estimate the impact of the regulation on CDS spreads. First, the developments in the region are analysed, and then the findings concerning Hungary are discussed.

[7] Within the CEEMEA index, of the EU countries the Hungarian and the Polish CDS markets explain 60 per cent of the regional developments both in terms of net notional and activity. Mainly the Russian and the Turkish markets dominate within the emerging Europe, and the South African one dominates in the African and Middle Eastern region.

[8] The cyclical character of the indicator stems from the elevated activity observed upon the maturity of standardised CDS transactions at the ends of quarters (20 March, 20 June, 20 September, 20 December).

Chart 6

Path of the composite CDS index of EU member emerging countries and the alternative path of the Hungarian CDS spread estimated using a simple univariate regression, based on the co-movement with the composite index of non-EU members



What portion of the decline in CDS spreads is attributable to the regulation in the region?

According to Chart 2, the comparison of the CDS indices concerning emerging countries within and outside the EU may serve as a good basis for examining how the technical-type factor arose in the case of other countries in our region. The relatively strong correlation between the indicators broke at the beginning of October 2012. The previously close co-movement, however, allows conclusions to be drawn regarding an alternative path of the EU index from the movement of the non-EU index after September. This is the hypothetical path that the EU average would have followed without the introduction of the new regulation, presuming that its earlier correlation with the non-EU spreads remained in place. The alternative path is estimated using a regression method (Chart 6); for details of the calculation, see the Appendix.

It is important to emphasise that the regression used here is based on the relationship between daily changes; therefore, in spite of the very convincing matching we do not consider it suitable for long-term calculations. However, our essential findings are not affected by this circumstance, as on the basis of the chart the breaking of the connection between the two time series is limited to the two or three weeks from the start of the alternative path (1 October).

As shown on the left side of Chart 6, according to our calculations, in the case of the CDS index of emerging EU countries there was an almost immediate, 50 basis point technical effect, which remained practically unchanged in the following months.

Our findings indicate a one-off shift in levels, after which the earlier correlations and dynamics prevailed again.[9] This observation may be consistent with a one-off CDS selling wave during which, with the disappearance of participants holding uncovered short positions, a 50 basis point part also became excluded from the price of the product. Possible explanations are discussed later.

What portion of the decline in CDS spread is attributable to the regulation in Hungary?

In the calculations regarding the magnitude of regional deviation we used composite indices. Although they capture the underlying regional developments well, due to the diversification they are less suitable for the identification of national-level developments. In the case of Hungary, a short-lasting, country-specific deviation from regional developments was experienced.

In connection with the Hungarian CDS spread, two methods were used to examine the shift that took place as a result

[9] Although the separation of the indicators may mean a region-specific change in investor sentiment, we consider it unlikely for several reasons. Firstly, the easing of tensions related to euro area and global crisis management had presumably taken place during the previous weeks. Secondly, during earlier changes in sentiment, the two indices showed a very close comovement, and thus nothing justifies their different response to similar developments. Thirdly, in the first two or three weeks of October there were no serious international measures or news that could have resulted in a regional improvement of this size.

of the new regulatory system. First, similarly to the method applied for the regional estimate, the co-movement with the index of non-EU emerging countries was taken as a basis for the calculations. Accordingly, the 'technical' effect related to the new regulation may have explained some 50 basis points of the decline in the Hungarian CDS spread in 2012 H2 as well (right panel, Chart 6). At the same time, in the case of Hungary the difference between the path that materialised and the one calculated with the regression was not a result of an immediate, one-off shift, i.e. its changes over time were different from the dynamics of the regional shift. According to our calculations, the deviation from the alternative path increased to 100 basis points within a few days at the beginning of October. Later, it only reached the 50 basis point level experienced in the case of the regional index by mid-November, following gradual decline. It is important to emphasise that our method does not give an answer to what extent the initial 100 basis point difference was explained by technical or country-specific factors.

The other method to estimate the technical effect is based on a multivariable regression.[10] In this case, the calculations were not carried out on the basis of external indicators, but with the help of alternative risk indicators that reflect the risk assessment of domestic assets from various aspects and that previously moved together with the CDS spread relatively well. In selecting the list of explanatory variables, we took into account that the new CDS regulation may have had an effect on FX bond spreads and government securities yields as well; therefore, these indicators – and the indicators that are insignificant from a statistical point of view – were not included in the list of variables.[11] As a result of the calculation based on alternative indicators, the picture of the changes in the technical effect is similar to the previous one: following an immediate deviation of 80–100 basis points, the difference estimated on the basis of the regression became stable at around 50 basis points by mid-November.

Accordingly, our experience was that in early October – in the most intensive period of the regional decline in spreads attributable to the technical regulation – the decline that took place in the Hungarian CDS spread exceeded the regional average considerably. One possible explanation is that in parallel with the decline of technical nature, a real premium also became excluded from the domestic spread, i.e. the relative market assessment of Hungary also improved. The separation of these fundamental and technical-origin effects is rendered difficult by the fact that in the period under review Hungary was in the focus of investors' attention in several matters whose impact on risk assessment is hard to assess. However, the movement of the regression path calculated using alternative domestic risk indicators may serve as a basis. Accordingly, the decline in the spread in October may have been a result both of technical and real improvements, but regarding their size we are unable to formulate a solid statement. The domestic risk premium somewhat increased from mid-October to mid-November, i.e. presumably real deterioration also took place in risk assessment. However, the rate of this deterioration was exceeded by the increase in the CDS spread; accordingly, the difference declined to 50 basis points, presumably partly as a result of the gradual correction of the technical and partly of real country-specific shifts.

DILEMMAS ARISING IN CONNECTION WITH THE REGULATION

On the basis of the regression estimate we concluded that the introduction of the CDS regulation in itself resulted in a permanent, 50 basis point decline in the CDS spread of the EU Member States in the region. This decline in the spread is to be understood in addition to the effect of the improvement taking place in global sentiment and the change that took place in the country-specific assessment of the states concerned. However, several questions may arise in connection with our findings. In the following, we attempt to find answers to the two dilemmas that we consider the most important.

How can we explain that the 50 basis point decline has become permanently included in market pricing?

In terms of the comparability of Hungary's risk assessment over time, one important question is why no correction of the technical effect was experienced in the spreads following the disappearance of the additional demand stemming from the forced closures after 1 November. This may mostly be explained by the change that possibly took place as a result of the regulation in the aggregate demand for the CDS transactions announced for the countries of the region. In general, the demand side of the product is heterogeneous: basically, two types of

[10] For details see the Appendix.

[11] The set of variables that served as the basis for the calculations: HUF/EUR exchange rate, implied volatility of the HUF/EUR exchange rate, risk reversal of the HUF/EUR exchange rate (skewness), CCIRS (cross currency interest rate swap) spread, 5-year forward government securities yield 5 years ahead.

participants can be distinguished. One of the groups of investors use CDS products to hedge the (default, interest rate etc.) risks related to their existing assets. The other group concludes CDS transactions for trading purposes, 'speculating' on the changes expected in the market perception of various countries. From the latter aspect, the CDS transaction is an especially popular product because it requires much less capital compared to performing the same transaction by purchasing the underlying product, i.e. the foreign exchange denominated asset. The fact that in the majority of emerging countries the CDS markets are more liquid[12] than the markets of FX bonds have similar effects.

The prohibition on taking uncovered CDS positions may have reduced the 'speculative' demand for CDS. At the same time, it did not have to influence the supply side, as the selling of a CDS contract is considered as a long position. As a result, a new equilibrium may have arisen between demand and supply, i.e. the elimination of the 'speculative' demand component may have resulted in the permanent inclusion of the decline in spread.

In other words, the traded product has essentially changed: compared to the earlier situation it is 'worth less', because the CDS written for the countries in the region cannot be applied in one of its ('speculative') functions. In terms of the remaining of the above effect over the longer term it is an important question how market participants will react to the regulation. It is conceivable that trading will be diverted to other markets (e.g. FX market or government securities futures market), but based on earlier experiences it is also possible that market participants will attempt to circumvent the rules by implementing financial innovation in order to continue to use the CDS market for taking speculative positions.

Are the developments in the CDS spread following the entry into force of the regulation still a reliable indicator of the changes taken place in the risk perception of EU Member States?

It is a fair question as to whether the developments in the CDS spread can still be considered an adequate risk indicator if the CDS product written for EU Member States has essentially changed. Examining the developments in the CDS spreads of EU countries, we see that the technical type of effects prevailed before the regulation entered into force. The dynamics of price changes in the EU Member States of the region did not deviate significantly from that of the other CEEMEA countries after 1 November, and the correlation coefficient between the spread movements of country groups rose once again to the high level observed earlier. All of this indicates that the CDS spreads of the countries affected by the regulation behave in line with the earlier regularities again.

Although the considerable decline that took place in market activity and the volatility of spreads until the end of February may theoretically indicate the drying up of the CDS market, no material deterioration has been experienced in the price indicators of liquidity. Accordingly, we believe that these phenomena are already more related to the favourable trends observed in global markets than to the regulation: in the period under review, the most important risk indicators (e.g. EMBI, VIX) and the CDS spreads of non-EU emerging countries followed a similar trend. Based on this, we think that although the 50 basis point shift in the CDS spreads of the countries of the region (attributable to the regulation) makes it difficult to compare the nominal levels in terms of time and cross-section, the dynamics of the spreads may continue to provide good guidance regarding the changes taking place in the relative market assessment of individual countries.

CONCLUSION

Our article discussed the CDS regulation that entered into force in the European Union in 2012 and its effects. According to our analyses, in October 2012 the CDS market developments in the EU Member States in the CEE region can be clearly distinguished from the trends observed in other countries, which, considering the previously very strong correlation, indicates that the regulation applying to the EU sovereigns had a material impact on the market.

The decline in the CDS spread attributable to the regulation was estimated using a regression method, based on which an around 50 basis point reducing effect was found both in the case of the regional index and Hungary. According to our calculations, in the case of the regional index this effect may be considered a one-off, permanent shift; in Hungary, it took place after a somewhat longer adjustment process.

Our findings suggest that the shift in the CDS spreads of the countries of the region attributable to the regulation makes it difficult to compare the present and past situation, as well as the EU and non-EU nominal levels. At the same time, for several months now, the relationship between the spreads have reflected the correlations observed earlier, and thus the dynamics of CDS spreads may continue to

[12] Varga (2009).

provide good guidance regarding the changes taking place in the market perception of individual countries.

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APPENDIX

Results of regressions

Table 1
Connection of alternative risk indicators and the CDS spread – regression coefficients and significance levels

Constant	5x5 forward bond spread	EUR/HUF	EUR/HUF risk reversal	EUR/HUF implied volatility	5 year CCIRS spread
−0.075 (0.84017)	0.223 (0.00003)	0.089 (0.00029)	2.143 (0.00000)	8.345 (0.00636)	8.015 (0)

Table 2
Connection of alternative risk indicators and the CDS spread – goodness of fit and significance

R^2	0.537
Adjusted R^2	0.532
F statistics	103.920
F stat. P-value	0.000
DW statistics	1.856
DW stat. P-value	0.046

Table 3
Connection of non-EU and EU CDS indices

Constant	−0.132 (0.328)
Coefficient	1.063 (0.000)
R^2	0.845
Adjusted R^2	0.845
F statistics	2,469.969
F stat. P-value	0.000
DW statistics	2.047
DW stat. P-value	0.664

Table 4
Connection of the non-EU and the Hungarian CDS indices

Constant	−0.101 (0.771)
Coefficient	1.456 (0.000)
R^2	0.601
Adjusted R^2	0.600
F statistics	679.505
F stat. P-value	0.000
DW statistics	1.478
DW stat. P-value	0.000
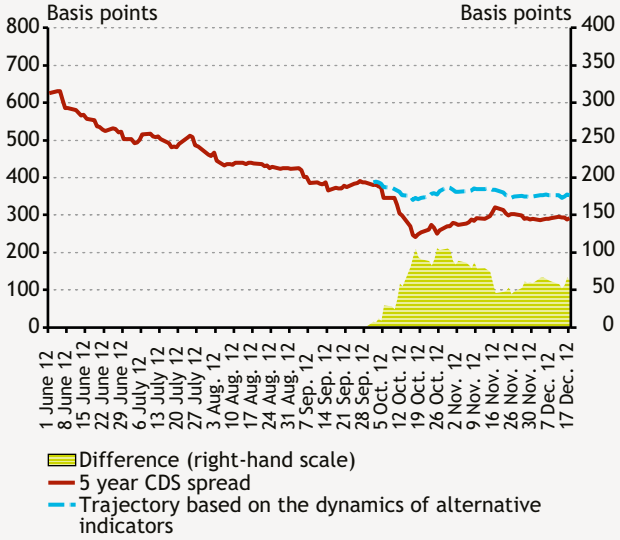
Chart 7
5-year Hungarian CDS spread and the regression path calculated on the basis of alternative indicators