

Compilation of statistical data on new financial instruments: the case of the Czech Republic

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1. Introduction

This paper analyses the system for compiling statistical data on new financial instruments in the Czech Republic. After a general overview of the financial derivatives methodology, the development of the use and statistical monitoring of new financial instruments is described. Furthermore, the experience with financial innovations during economic transition, changes in accounting, and data availability for the monetary and supervisory statistics are narrated. The statistical reporting system now covers the banking system, but data on trading in new financial instruments on the Prague Stock Exchange are also available. The closing part of this paper also covers further plans for the compilation of statistical data on new financial derivatives.

2. Definitions of financial derivatives

The fifth edition of the IMF Balance of Payments Manual (BPM5) originally included financial derivatives under portfolio investment. The increasing importance of financial derivatives led to separate functional categories being created, and a supplement to BPM5 was published in 2000. Special attention is given to financial innovation in the sixth edition (BPM6), as accelerating growth in new financial instruments and arrangements has been visible among institutional units over the past two or three decades. Paragraph 5.75 of BPM6 states, “A financial derivative contract is a financial instrument that is linked to another specific financial instrument or indicator or commodity and through which specific risks (such as interest rate risk, foreign exchange risk, equity and commodity price risks, credit risk, etc) can be traded in their own right in financial markets. Transactions and positions in financial derivatives are treated separately from the values of any underlying items to which they are linked”. Paragraph 8.33 of BPM6 states “Transactions involving financial derivatives may arise at inception, on secondary markets, with ongoing servicing (such as for margin payments), and at settlement.”

Statistical monitoring of derivatives stocks is clearly described in international BoP manuals (the IMF Balance of Payments Manual; the ECB manual on the EU balance of payments/international investment position). But the monitoring of derivatives transactions is not so clearly defined in these manuals. It is not possible to derive flows from derivatives stocks at market value.

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3. New financial instruments and their monitoring in the Czech Republic

3.1 Development of financial derivatives trading in the Czech Republic

The Czech economy's first contact with financial innovations came in the fourth quarter of 1995, immediately after the adoption of the new Foreign Exchange Act no 219/1995 in October.² The Czech koruna was adopted as a clearing currency in the international clearing system. Euro-obligations denominated in CZK issued by non-residents were accepted in Euroclear and the CEDEL Bank as from the fourth quarter of 1995. Significant growth in koruna-denominated instruments issued by non-residents (usually multinational financial corporations with AAA or AA+ investment ratings) was recorded in 1996 and at the beginning of 1997. The main reasons for these transactions were the existing interest rate differential between the Czech koruna and other currencies, the fixed exchange rate and the continuing convergence of interest rates in EU countries. Due to high inflation, the interest rate in the Czech market was over 10% in this period. In the first phase of issuance of Czech koruna-denominated eurobonds, non-residents increased the demand for koruna. The exchange rate of the domestic currency showed an appreciation tendency, while interest rates in the domestic interbank deposit market declined. The opposite tendency was visible when the bonds were amortised. There is no doubt that these financial instruments (cross-currency interest rate swaps) were one of the reasons for the monetary and currency turbulence that the Czech Republic faced in May 1997.

Table 1

Issuing activity of non-residents in Czech koruna-denominated eurobonds

Quarter or month/year	III.Q.95	IV.Q.95	I.Q.96	II.Q.96	III.Q.96	IV.Q.96	January/97	February/97	March/97
Number of issue	0	4	3	5	7	11	13	13	9
Amount in CZK bn	0	5,5	4,6	6,5	10,5	12	20	17	10

Source: CNB, Report on Monetary Developments in the first quarter of 1997, p 37.

Statistical monitoring was covered directly from Euroclear and the CEDEL Bank.

3.2 Statistics on derivatives in the Czech Republic

Foreign banks in the Czech market (operating via branches or by mergers with and acquisitions of existing Czech commercial banks) started to offer derivatives instruments to residents. The market value of derivatives is recorded in banks' balance sheets; the notional value of derivatives is recorded as an off-balance sheet item. The active market value of a derivative (sell or buy) is part of the asset side and the negative market value of a derivative (sell or buy) is part of the liability side of the balance sheet. For the purposes of the

² The new Foreign Exchange Act declared the convertibility of the Czech koruna on the basis of Article VIII of the IMF Treaty and also in conformity with the OECD Codex on liberalisation of capital flows.

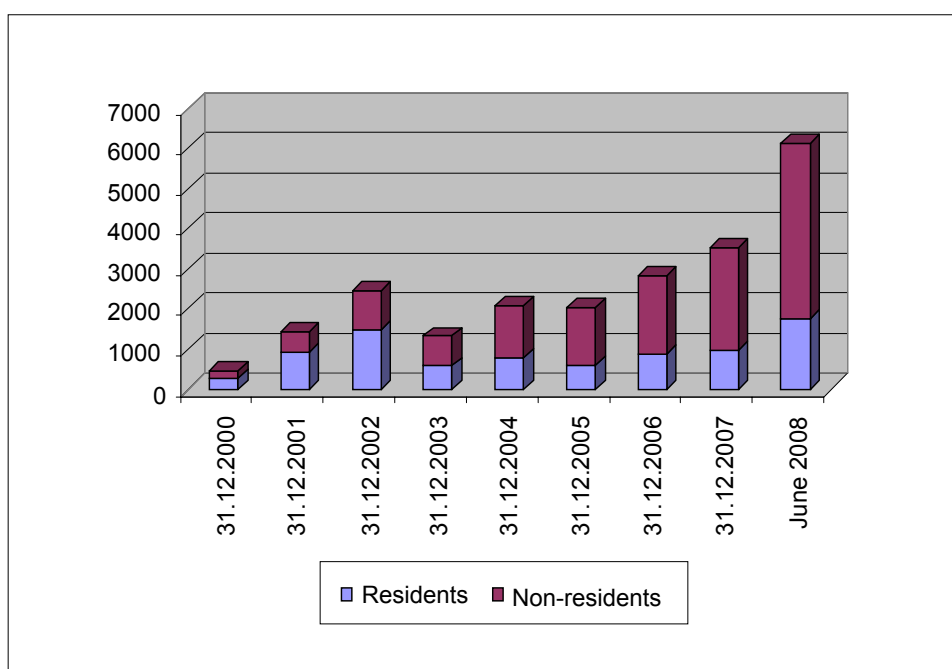
international investment position, monitoring of derivatives was implemented in 2000, when these instruments became important from the macroeconomic point of view. Monitoring of flows (eg for BoP purposes) has not yet been implemented in the Czech Republic.

Significant changes in the accounting of derivatives were implemented in January 2004 before accession to the European Union on 1 May 2004. A new amendment to the Income Tax Act distinguishes between hedging derivatives and speculative derivatives. The costs (profit or loss) of hedging derivatives are compensated in the accounting system by the profit of the company. The profit (or loss) connected with speculative derivatives is compensated by core capital. The position in a single derivative may also consist of two components – hedging and speculative. There is no scope for the unit to choose the accounting method, as it has to choose either protection of the real amount or protection of risk. For example, options are treated not as hedging derivatives but as speculative ones.

The development of the derivatives market in the Czech Republic over the past almost 15 years has been remarkable. But it was not covered by consistent accounting methods and statistics from the beginning. Derivatives trading was initially concentrated in the banking sector, the prevailing form being OTC derivatives (forward, swaps and options). The first statistical survey on derivatives in the banking sector was conducted by the Czech National Bank’s banking supervision department in September 1994. The birth of the derivatives market in the Czech Republic was connected with currency instruments, currency forwards and currency swaps without interest payments. These types of derivatives covered 80% of all derivatives traded in 1996.

The use of new types of financial instruments expanded in the period 1996–2001, when interest rate instruments were implemented for trading (FRAs, interest rate swaps, interest rate futures, interest rate options). Currency options were introduced for monetary policy purposes.

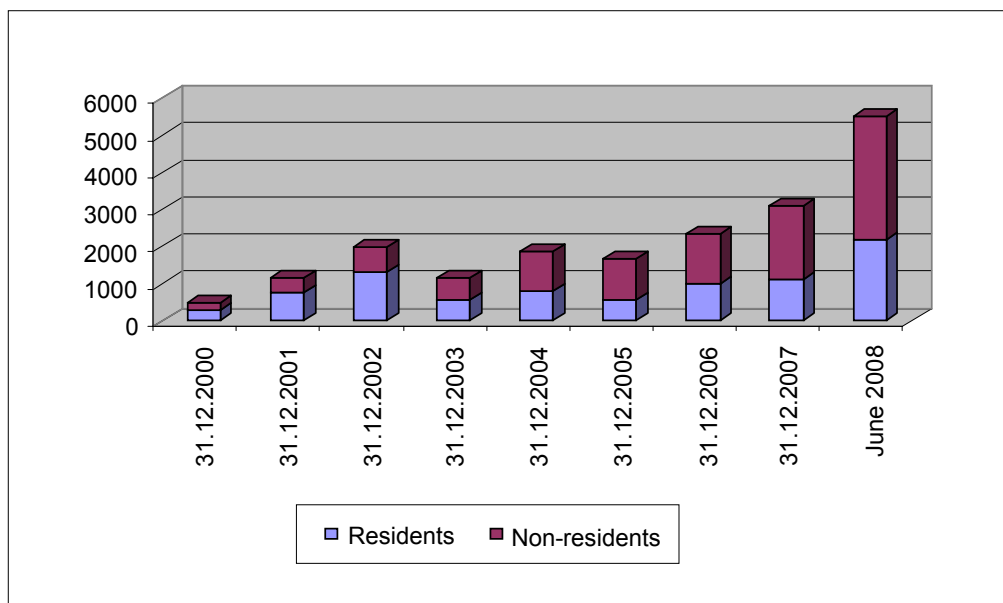
Graph 1
**Market value of derivative assets held by Czech banks
with non-residents and residents**
in EUR millions



Source: Czech National Bank, Monetary and Financial Statistics.

The accounting system for derivatives and their statistical monitoring has changed several times and no consistent time series are available. Therefore, to describe the development and structure of financial derivatives in the Czech banking sector consistently, it is necessary to select time series starting from 2000 and 2004. The main reasons are changes in the Czech banking sector due to mergers and acquisitions by foreign banks. These takeovers were connected with changes in hedge accounting. Moreover, International Accounting Standards (IAS 39) were adopted in the Czech Republic in 2004. These changes in banking accounting allowed the implementation of the market value of derivatives held in assets and liabilities vis-à-vis non-residents in the international investment position.

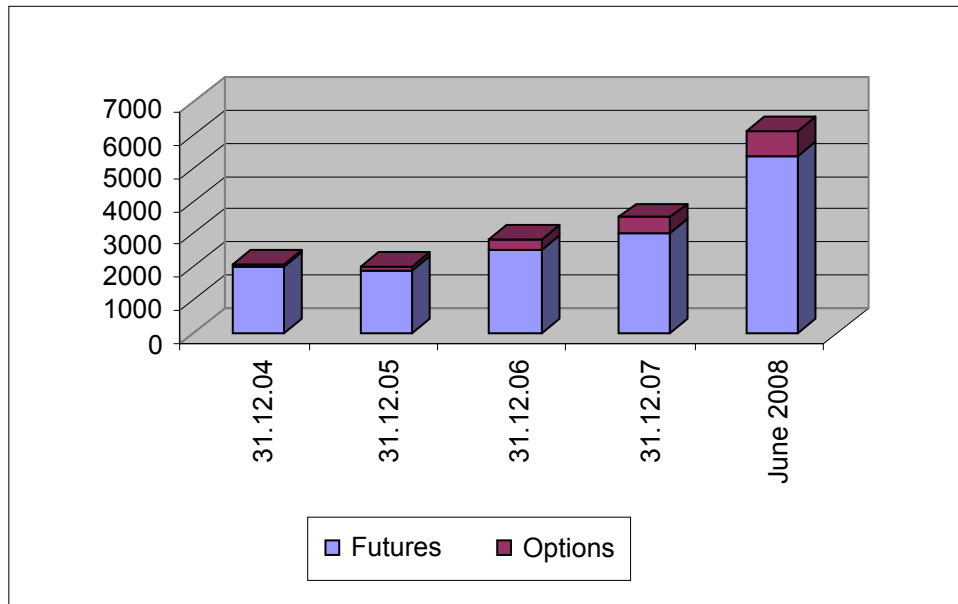
Graph 2
**Market value of derivative liabilities held by Czech banks
with non-residents and residents**
in EUR millions



Source: Czech National Bank, Monetary and Financial Statistics.

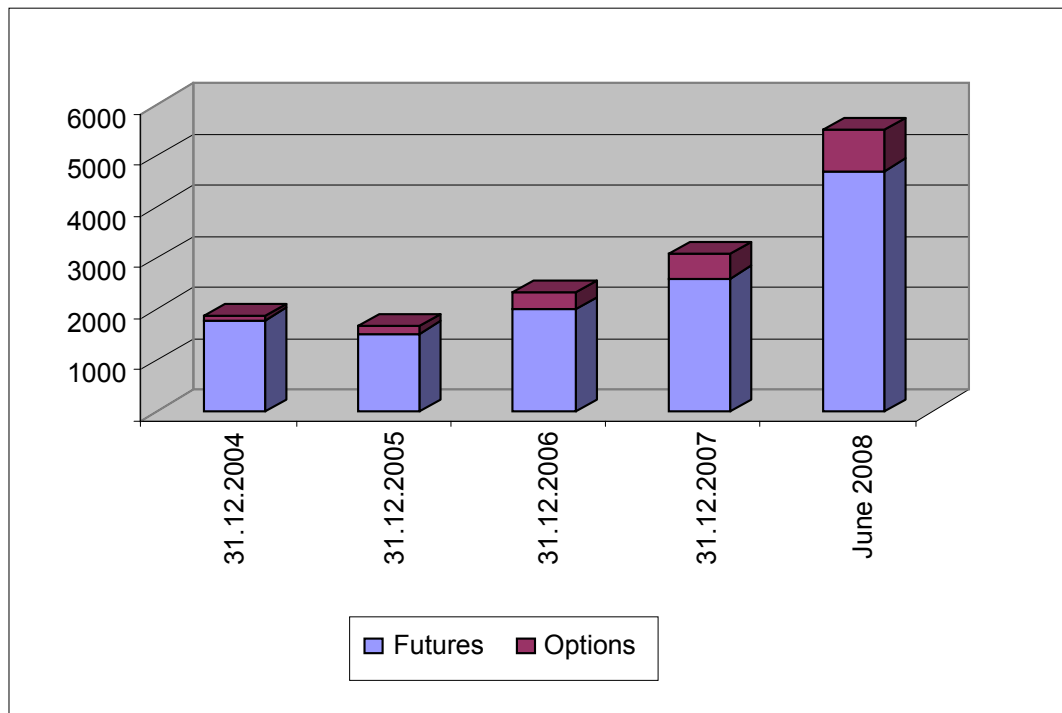
From the point of view of the main categories of derivatives, it is clear that forward-type contracts (futures) predominate, while options play only a minor role. The share of options contracts in the total value is rising steadily. The structure is the same on both the asset and liability sides.

Graph 3
Market value of derivative assets held by Czech banks
in EUR millions



Source: Czech National Bank, Monetary and Financial Statistics.

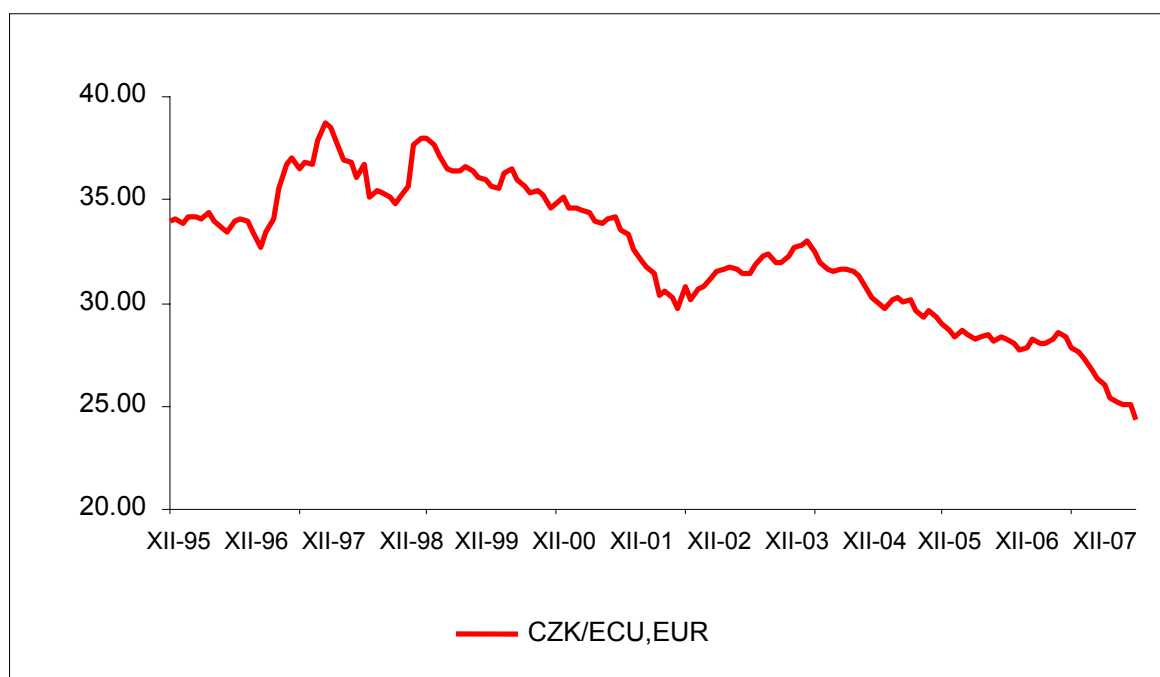
Graph 4
Market value of derivative liabilities held by Czech banks
in EUR millions



Source: Czech National Bank, Monetary and Financial Statistics.

The Czech koruna has been appreciating over the last couple of years due to excellent performance in foreign trade in goods and services (a growing surplus since 2004) and capital inflows into the Czech Republic (foreign direct investment), increasing labour productivity, and partially also due to the undervaluation of the domestic currency at the beginning of the economic transition, from the purchasing power parity point of view. The convergence of the price level in the Czech Republic with that of the EU 15 is proceeding more through the exchange rate channel than via inflation.

Graph 5
Foreign exchange rate CZK/ECU, EUR
 monthly average



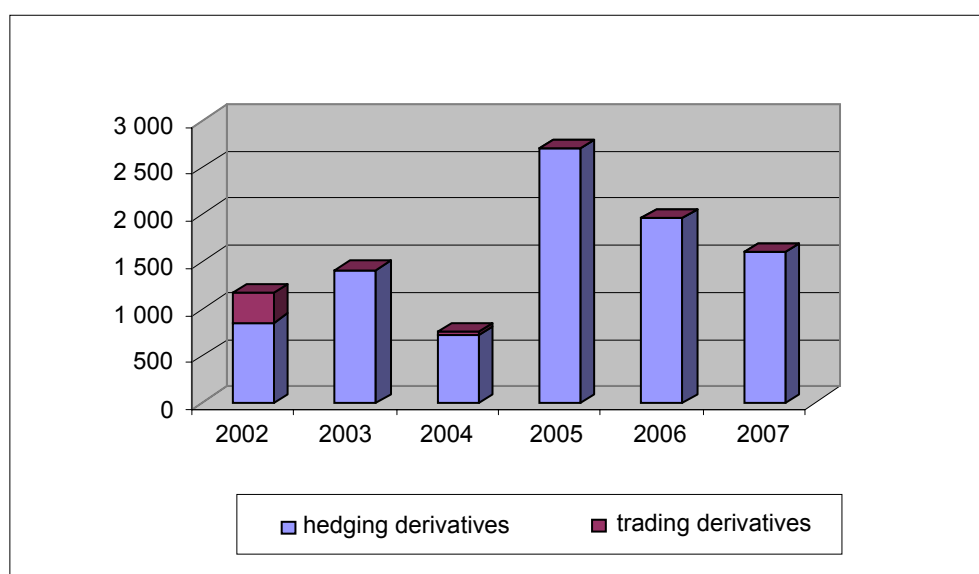
Source: Czech National Bank, Monetary and Financial Statistics.

To avoid foreign exchange risk due to the nominal appreciation of the domestic currency, companies are hedging with currency futures contracts. The breakdown by type of derivative instrument shows that currency derivatives have accelerated mainly in the past three years, accompanied by the simultaneous appreciation of the domestic currency.

The bulk of the interest rate derivatives are interest rate options, FRAs and interest rate swaps. The currency derivatives consist mainly of currency forwards, currency options and futures. New phenomena are visible in other derivatives. These are connected not only with stock exchange derivatives, but also with stock derivatives and commodity derivatives.

These figures do not cover companies hedging directly abroad against currency risks and commodity price risk. The number of such companies (mostly foreign affiliated) is increasing. Therefore, the Balance of Payments Division of the Czech National Bank will implement a survey of new financial instruments covering the market value of derivatives. For example, the largest car company in the Czech Republic, Škoda Auto (a member of the Volkswagen Group), publishes the notional value of its derivatives in its annual reports. It is clear that most of Škoda's export production is hedged against foreign exchange risk.

Graph 6
Notional value of derivatives - Škoda Auto
in EUR millions



Source: Škoda Auto Annual Reports 2002–07.

The annual reports of other companies also reveal that other private- or state-owned companies are involved in financial derivatives transactions, for instance the Czech power utility ČEZ. Dairies, too, have long-term contracts for deliveries abroad connected with financial derivatives. They sell milk for processing in Germany, have fixed contracts in EUR for more than two years and prefer income in CZK. A German bank therefore executed a currency swap in EUR/CZK to cover this demand. A new kind of instrument that is widely used is commodity derivatives. These are connected with contracts for crude oil, natural gas or other commodities, due to the rapid growth in commodity prices over the past two years.

Generally speaking, the hedging instruments used by Czech exporters to cover their foreign exchange risks are one of the factors affecting the CZK/EUR exchange rate in the spot market and driving the appreciation of the Czech koruna.

3.3 Derivatives trading on the Prague Stock Exchange

The Czech Securities Commission granted the Prague Stock Exchange (PSE) permission to organise a public market for selected options and futures contracts (subject to certain conditions) in a decision dated 2 August 2001. The granting of the licence by the KCP (the official market regulator) is an expression of the opinion that the PSE has proved its preparedness for organising derivatives trades not only from the technical perspective, but also from the legal, business and personal standpoints. This decision expands the licence currently held by the PSE as a public securities market organiser, since it includes permission to organise both the supply of, and the demand for, the following capital market instruments at a fixed place and time:

1. Options whose value is derived from the official price index;
2. Futures whose value is derived from the official price index;

3. Futures whose value is derived from the interest rate commonly used in the Czech financial market;
4. Futures whose value is derived from the public bonds basket.

The entire process of preparation of the organised derivatives market comprises not only the licensing of the PSE and UNIVYC (joint stock company authorised settlement of trades in securities), which has applied to the Czech Securities Commission for the relevant permission, but also the licensing of brokers firms, brokers' examinations and the preparation of traders' (dealers') systems. The objective of the preparation process is not only to implement a trading system of an appropriate standard, but also to set up a derivatives trade settlement system of equal quality. Experience abroad shows that markets that have introduced derivatives trading have also seen some improvement in liquidity in the prompt market. The PSE expects that the same could happen in its market.

On 17 December 2001, the Czech Securities Commission granted UNIVYC permission to settle derivatives trades concluded on the PSE. UNIVYC's current licence, covering settlement of PSE trades, has been expanded to include settlement of trades in the following capital market instruments:

1. Futures whose value is derived from the price index;
2. Futures whose value is derived from the interest rate commonly used in the Czech financial market;
3. Futures whose value is derived from the government bonds basket.

A further necessary condition for the launch of organised trading in derivatives on the Czech capital market is the granting of derivative licences to relevant PSE members, which must meet the capital, technical, organisational and personal requirements set by the Czech Securities Commission.

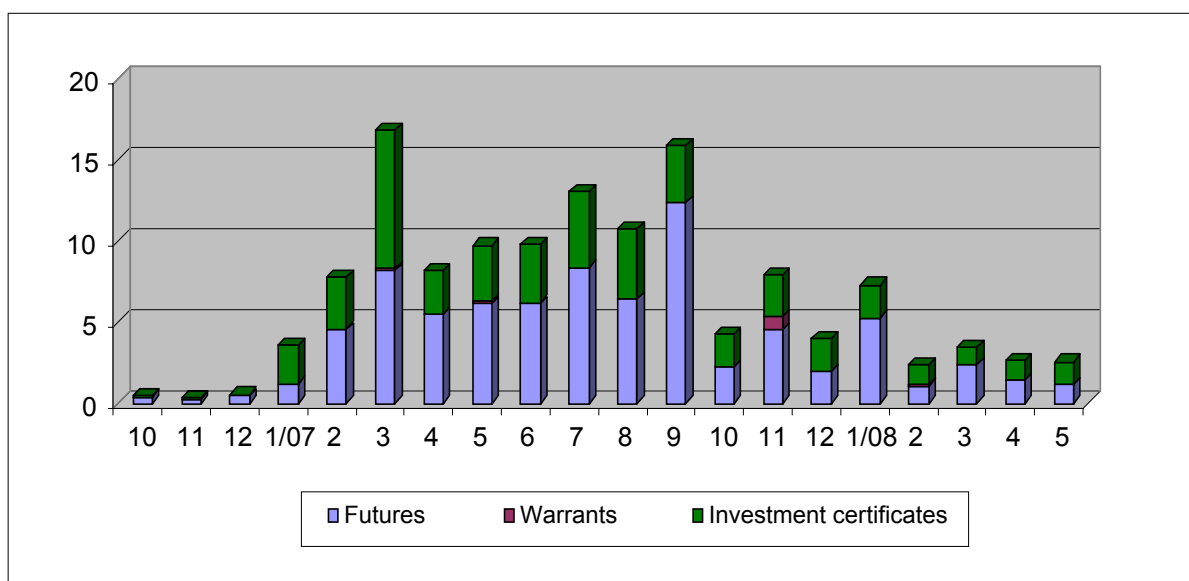
It took several years to prepare derivatives trading on the PSE. In the meantime, all the institutions of supervision of the financial market were merged into the Czech National Bank (in April 2006). Therefore, on 18 July 2006, the Czech National Bank awarded the PSE an extended licence to trade new types of investment instruments, namely leveraged certificates, option certificates and warrants. The new licence also extends the scope of the underlying assets for futures trading.

The following may now be used as underlying assets for futures trading:

- Stock admitted to trading on an organised market based in an EU or OECD country,
- Stock market indices from EU or OECD countries, including indices comprising stock from more than one country and baskets of such indices,
- The currency of an EU or OECD country,
- The price of and/or yield on government bonds issued by an EU or OECD country denominated in the currency of an EU or OECD country, including baskets of such bonds,
- The price of issue certificates determined by an organised market based in an EU or OECD country,
- The price of a commodity determined by an organised market based in an EU or OECD country.

The current derivatives market organisation licence held by the PSE since 2001 allows for exchange trading of only a selected portfolio of investment instruments. Foreign market experience shows that derivative products have high potential and are very popular with investors.

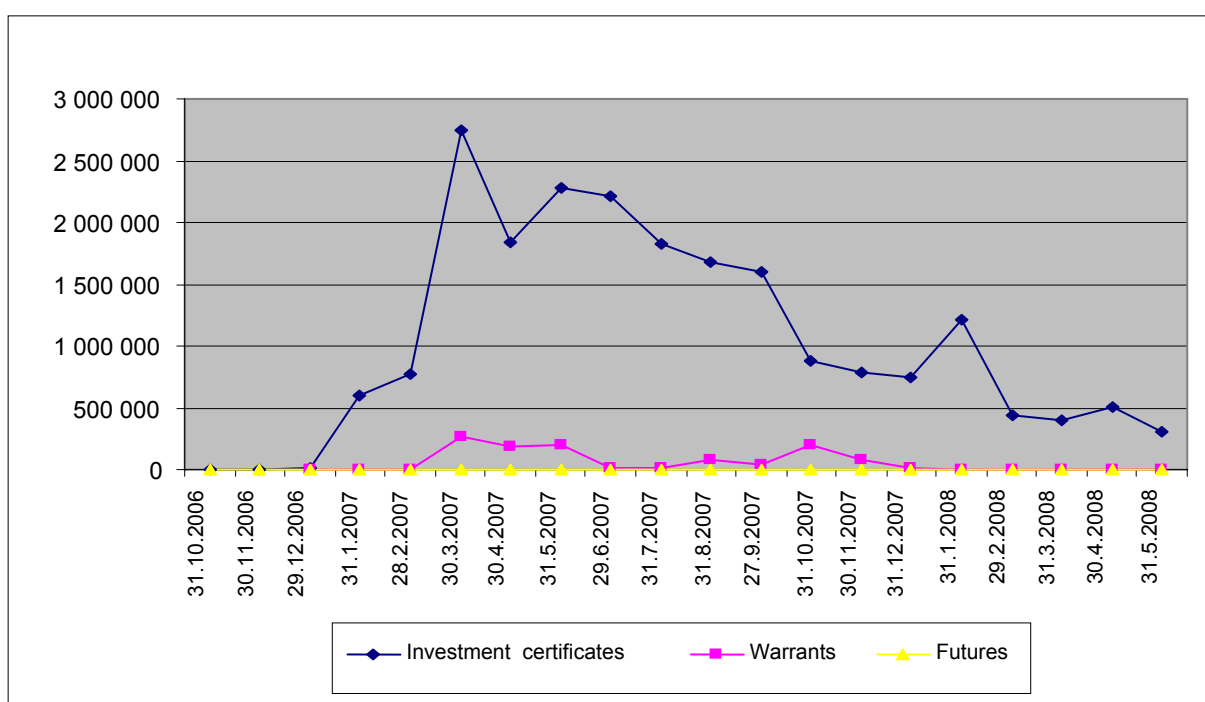
Graph 7
Derivatives trading on the Prague Stock Exchange
in EUR millions



Source: Prague Stock Exchange.

Trading in the new financial instruments is limited, and trading in standardised contracts is only just beginning. Compared to OTC transactions executed by banks with non-residents and between themselves, derivatives trading is on a much smaller scale.

Graph 8
Number of instruments traded on the Prague Stock Exchange



Source: Prague Stock Exchange.

4. Conclusions

Data on derivatives stocks held by banking sector are collected in aggregated form in banking statistics, and breakdown by type of instrument is available for supervisory purposes in the Czech Republic. The methodology and accounting have changed several times, so it is difficult to present a consistent time series and structure of financial derivatives. Furthermore, it is relatively easy to monitor stock data on the market value of derivatives, but it is hard to define flows, for instance for BoP purposes.

Data show that derivatives trading is becoming an important part of the balance-sheet trading of financial and non-financial institutions in the Czech Republic. Local banks, mostly foreign owned, have not been hit by the subprime mortgage crisis, as they did not invest in US securities connected with this instrument, focusing instead on the Czech market. New consumer credit and new mortgages provided by Czech banks to citizens are booming. But an acceleration in new financial derivatives is also visible in the balance sheets of Czech institutions. Domestic demand for financial derivatives accelerated in 2007 and the first half of 2008. This demand is concentrated in currency derivatives, but clients are also starting to invest in commodity derivatives as a result of the growth in commodity prices. The main reason for the use of financial derivatives in the Czech Republic is to avoid foreign exchange risk due to the continuous nominal appreciation of the domestic currency (the Czech koruna).

The main Czech exporters cover their foreign exchange and other risks not only with domestic banks, but also directly abroad. Therefore, statistical monitoring of stocks of new financial instruments for the balance of payments statistics will be extended to include the balance sheets of companies (the biggest players) as from 1 January 2009.

To conclude, the bulk of the domestic demand for new financial instruments in the Czech Republic is connected with risk aversion instruments, not with speculative trade. Most of the financial derivatives instruments used in the Czech Republic are forward contracts, specifically non-exchange traded futures. In most cases, forward contracts are executed after the contract expires and the underlying asset is bought or sold at the pre-agreed price.

Financial derivatives statistics are becoming increasingly important. Consequently, it seems essential to unify at international level the statistical rules for monitoring not only stocks, but also transactions in new financial instruments for BoP statistics and National Accounts Statistics purposes.

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