

## ANALYSIS

16 February 2017

### External Trade Price Indices Development in Q4 2016 and in the Year 2016

Export prices in Q4 2016, compared to Q3 2016, increased by 0.5%, import prices grew by 1.9% and terms of trade reached 98.6%. Compared year-on year (y-o-y), export prices in Q4 2016 decreased by 1.3%, import prices fell by 0.4%, and terms of trade reached the value of 99.1%.

#### Quarter-on-quarter (q-o-q) comparison

**Export prices** in **Q4 2016**, compared to **Q3 2016**, increased by 0.5% (in Q3 2016 they stayed unchanged). The more important price increases were observed in 'mineral fuels, lubricants and related materials' by 9.6%, 'crude materials, inedible, except fuels' by 2.6%, 'miscellaneous manufactured articles' by 0.4%, and in 'machinery and transport equipment' by 0.2%. The prices of 'manufactured goods classified chiefly by material' declined by 0.1%.

**Import prices** in **Q4 2016**, compared to **Q3 2016**, increased by 1.9% (in Q3 2016 they increased by 0.7%). Among import prices of important groups of goods price increases were recorded, from the highest one, for 'mineral fuels, lubricants and related materials' by 10.9%, 'crude materials, inedible, except fuels' by 2.2%, 'manufactured goods classified chiefly by material' by 1.4%, and for 'machinery and transport equipment' by 1.0%. No decrease in prices of any of the groups monitored was noticed.

The **terms of trade** figures in **Q4 2016**, compared to **Q3 2016**, reached the value of 98.6% (in Q3 2016 they were 99.3%). Negative values of terms of trade were recorded especially, from the lowest one, in 'manufactured goods classified chiefly by material' (98.5%), 'mineral fuels, lubricants and related materials' (98.8%), and in 'machinery and transport equipment' (99.2%). The more important positive value of terms of trade were recorded in 'crude materials, inedible, except fuels' (100.4%).

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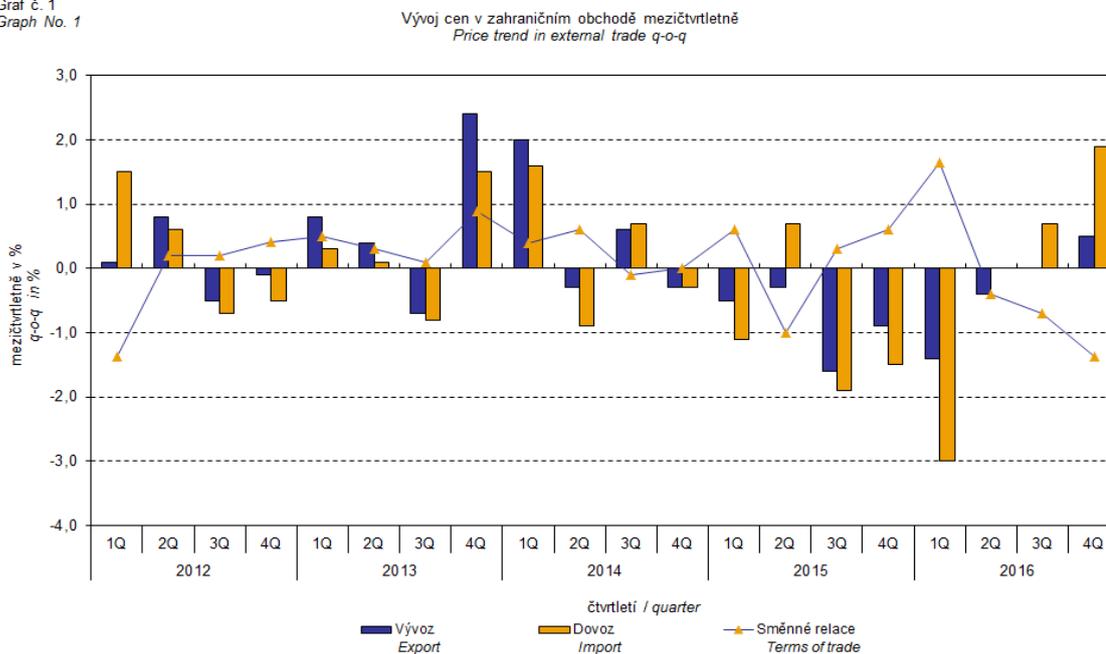
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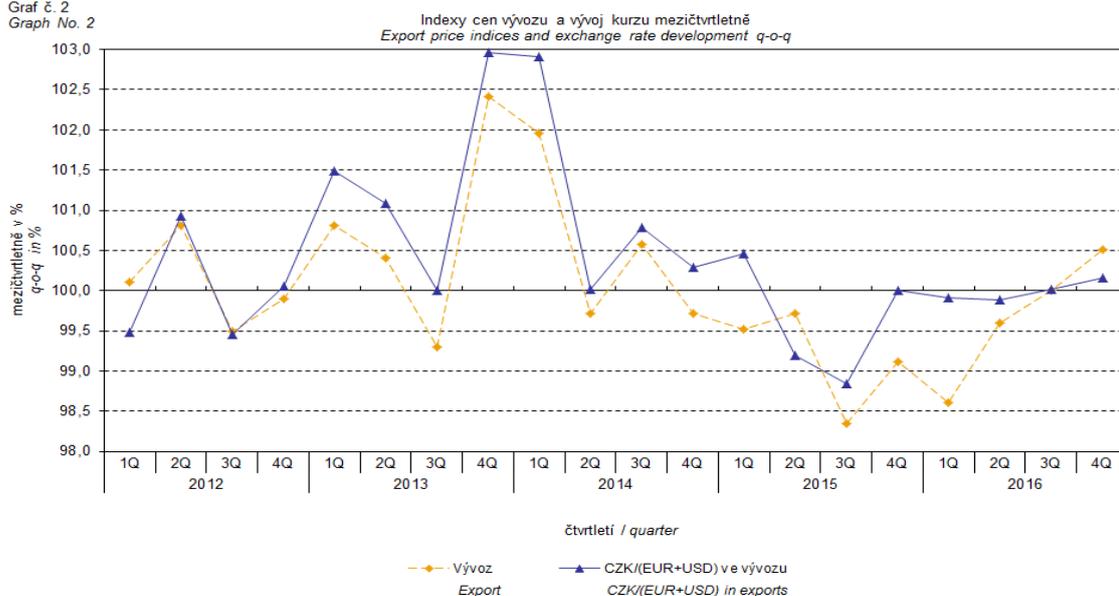
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Graf č. 1  
Graph No. 1



The external trade price development was also significantly affected by the CZK exchange rate to the major foreign currencies. The q-o-q exchange rate index includes two most important currencies from the Czech Republic's external trade point of view, i.e. EUR and USD. Q-o-q indices of the CZK exchange rate to these currencies were weighted by the weight, which pertains to those foreign currencies in the export price index and import price index, respectively.

Graf č. 2  
Graph No. 2



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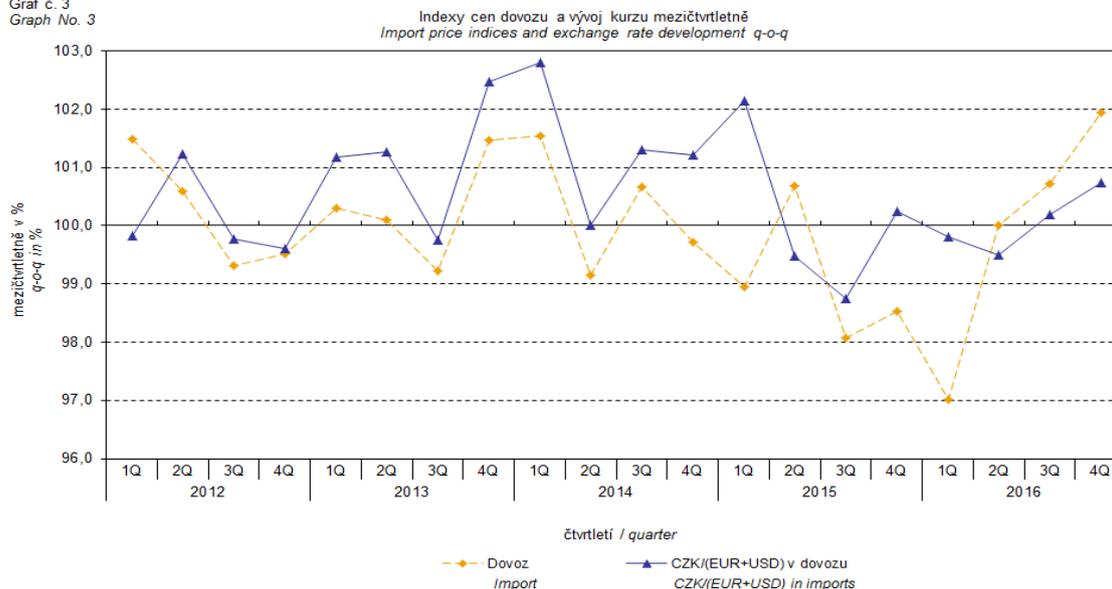
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Graf č. 3  
Graph No. 3



It can be seen from Graphs Nos. 2 and 3 above that in both cases of imports and exports external trade prices have a strong relation to exchange rate impacts. Contracts with foreign entities are, as a rule, signed for a longer period of time and the longer the contract period is, the stronger the relation to exchange rates is.

### Year-on-year (y-o-y) comparison

**Export prices** in **Q4 2016** decreased by 1.3% (in Q3 2016 they fell by 2.7%), year-on-year. Among more important groups of goods, the highest drop was reported for prices of 'chemicals and related products' by 3.4%, then in 'manufactured goods classified chiefly by material' by 1.7%, 'mineral fuels, lubricants and related materials' and 'machinery and transport equipment' identically by 1.3%. The prices growing were namely those of 'crude materials, inedible, except fuels' by 1.1%.

**Import prices** in **Q4 2016** decreased by 0.4% (in Q3 2013 they fell by 3.7%), year-on-year. The highest decline in prices was recorded for 'mineral fuels, lubricants and related materials' by 1.5%, then for 'chemicals and related products' by 1.2%, and for 'machinery and transport equipment' by 0.9%. Prices of 'crude materials, inedible, except fuels' grew by 3.2%, and those of 'food and live animals' rose by 2.8%.

**Terms of trade** in **Q4 2016** decreased year-on-year to reach the value of 99.1% (in Q3 2016 they were 101.0%) and thus they moved into negative values – see Graph No. 4 below. Negative values of terms of trade were recorded namely for 'food and live animals' (96.4%), 'chemicals and related products' (97.8%), and for 'machinery and transport equipment' (99.6%). Among more important groups of goods positive values of terms of trade were recorded for

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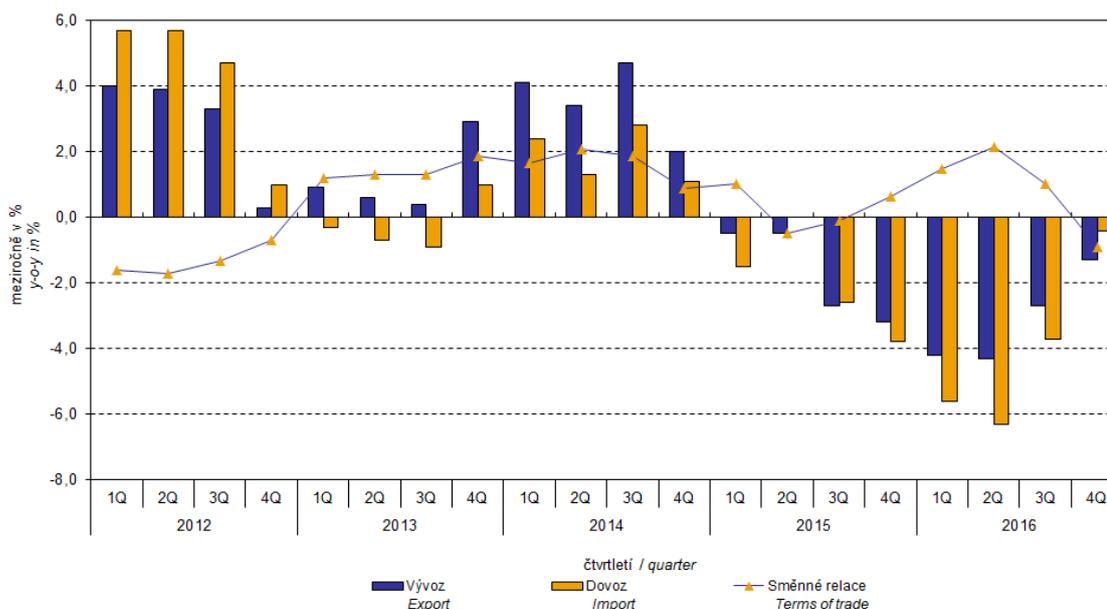
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'miscellaneous manufactured articles' (100.6%) and for 'mineral fuels, lubricants and related materials' (100.2%).

Graf č. 4  
Graph No. 4

Vývoj cen v zahraničním obchodě meziročně  
Price trend in external trade y-o-y



### Price development in 2016

**On average over the whole year 2016 export prices** decreased by 3.1% (in 2015 they declined by 1.7%). **Import prices** fell by 4.0% (in 2015 they dropped by 1.9%).

In **export prices** decreases were noticed, first of all, in groups of 'mineral fuels, lubricants and related materials' by 13.0%, 'chemicals and related products' by 6.2%, 'manufactured goods classified chiefly by material' by 4.1%, and in 'machinery and transport equipment' by 2.0%. The growing prices were those for 'animal and vegetable oils, fats and waxes' by 4.4% and for 'beverages and tobacco' by 1.0%.

In **import prices** significant price decreases were recorded in 'mineral fuels, lubricants and related materials' by 22.6%, 'chemicals and related products' by 4.4%, 'manufactured goods classified chiefly by material' by 3.9%, and in 'machinery and transport equipment' by 1.2%. The only growing prices were those of 'beverages and tobacco' by 0.9%.

**Terms of trade** reached in total in 2016 the value of 100.9% (they were 100.2% in 2015).

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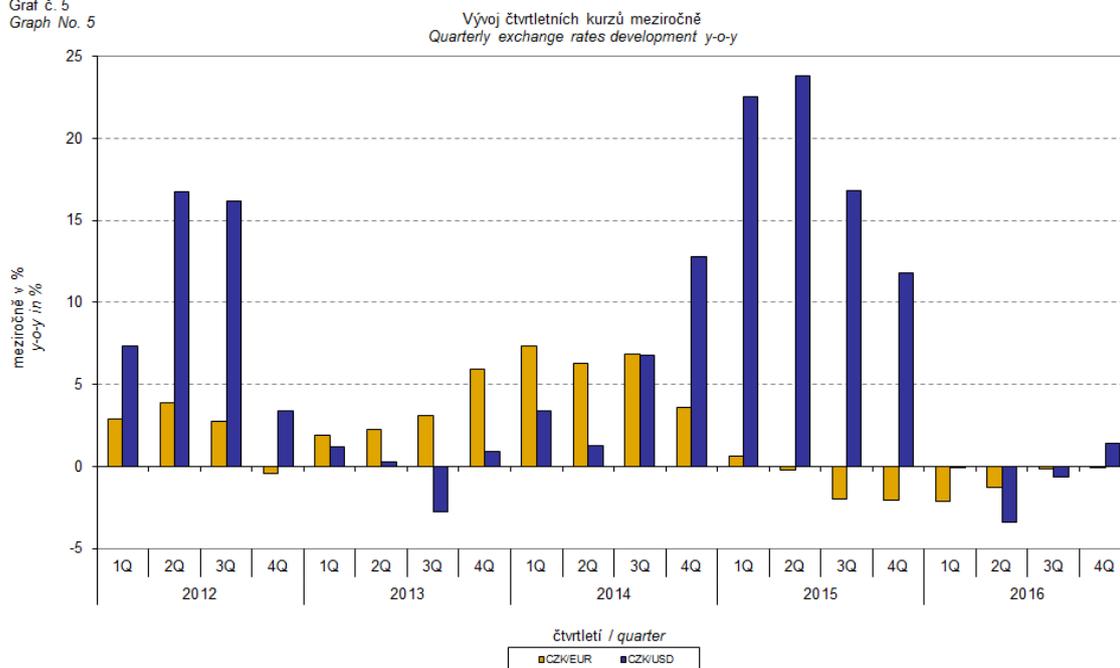
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Graf č. 5  
Graph No. 5



### External trade price indices adjusted y-o-y for exchange rate influence

The CZSO also carries out calculations of year-on-year external trade price indices adjusted for effects of exchange rate. The method is prices in foreign currencies reported in the current month are **converted** into Czech crowns by the **exchange rate** of the same month **of the last year**. Then they are used for the weighted mean calculation along with prices reported in CZK. The year-on-year adjusted price index is then calculated the way that this exchange rate adjusted base price index is related to the non-adjusted base price index of the same month of the last year. **Differences among adjusted and non-adjusted price indices may be substantial.** They can be clearly seen in Graphs Nos. 6 and 7 for November 2013 and December 2013, for instance.

The method employed does not enable, for many practical reasons, to carry out 100% exchange rate adjustment because all trade transactions concluded in foreign currencies are not reported in foreign currencies. This share is up to 30%. It follows from the aforementioned, that **at the full exchange rate adjustment differences** in between the price indices published and the exchange rate adjusted price indices would be **even larger**.

The aforementioned exchange rate adjusted indices can be used to form the exchange rate adjusted breakdown of price indices increments. Table 1, last but one page, gives the **published and exchange rate adjusted breakdowns of increments** of export and import price indices, expanded to the most important two-digit code groups of the SITC 7. These breakdowns illustrate, in a good manner, how many percentage points each of the groups "exchange rate contributed" to the index.

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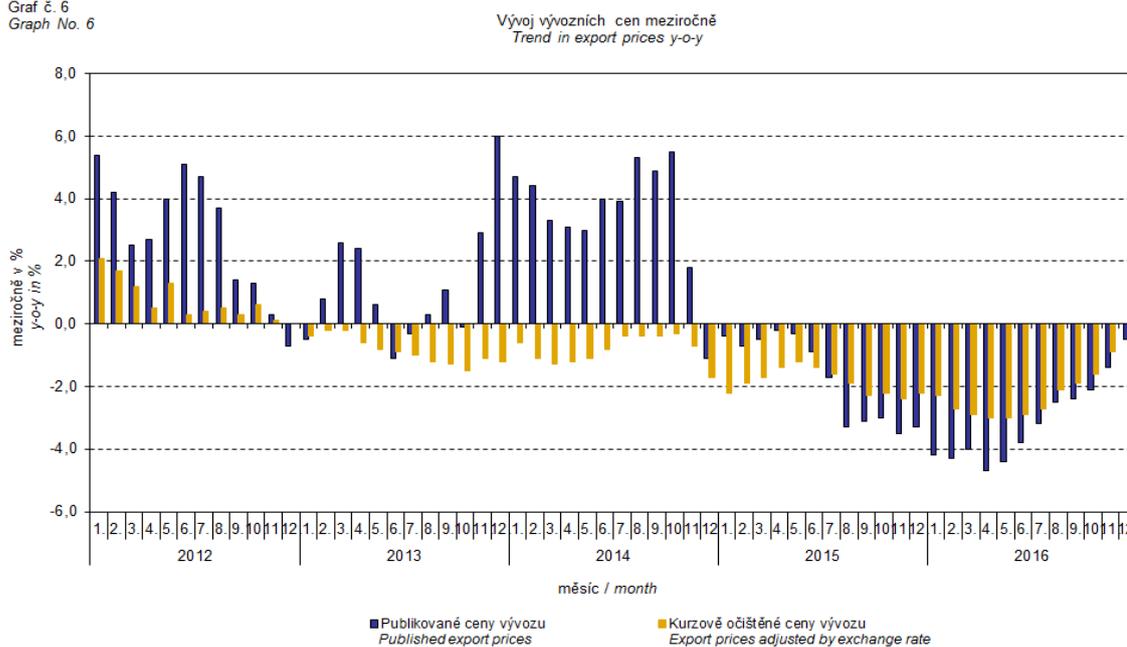
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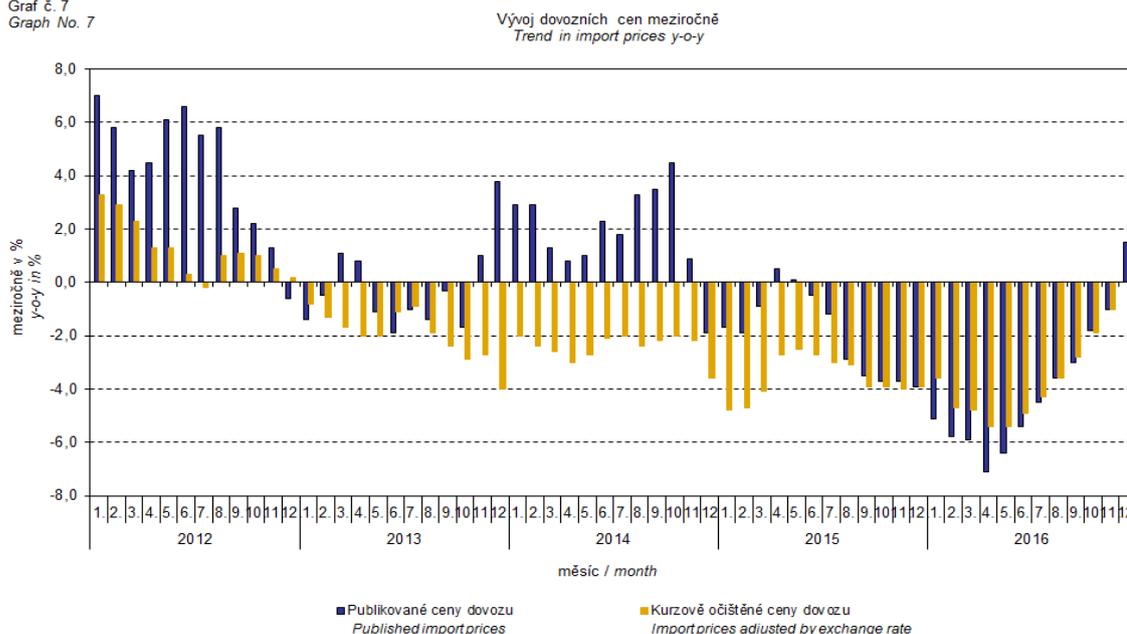
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It holds in general that the effects of exchange rate decrease the value of price indices in external trade if CZK is strengthening to foreign currencies in total. Conversely, the effects of exchange rate push the price indices up if CZK is weakening to foreign currencies in total. It is obvious from the following Graphs Nos. 6 and 7, how significant was the exchange rate impact on the value of export and import price indices.

Graf č. 6  
Graph No. 6



Graf č. 7  
Graph No. 7



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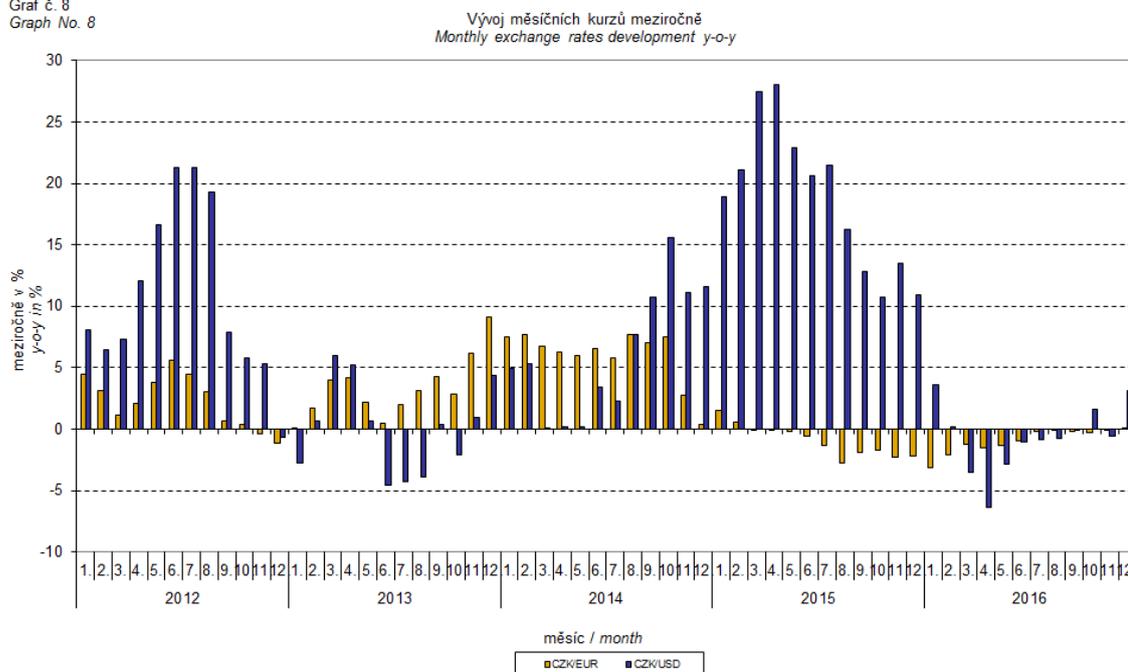
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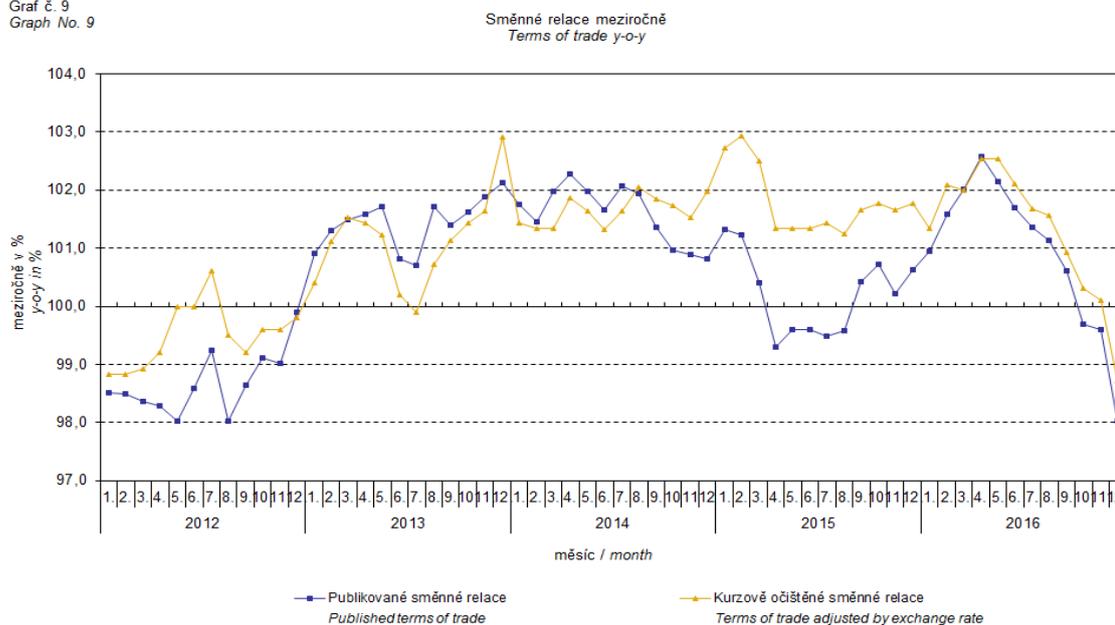
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Graf č. 8  
Graph No. 8



Graf č. 9  
Graph No. 9



It can be seen from Graph No. 9 how the exchange rate influences the value of the year-on-year terms of trade.

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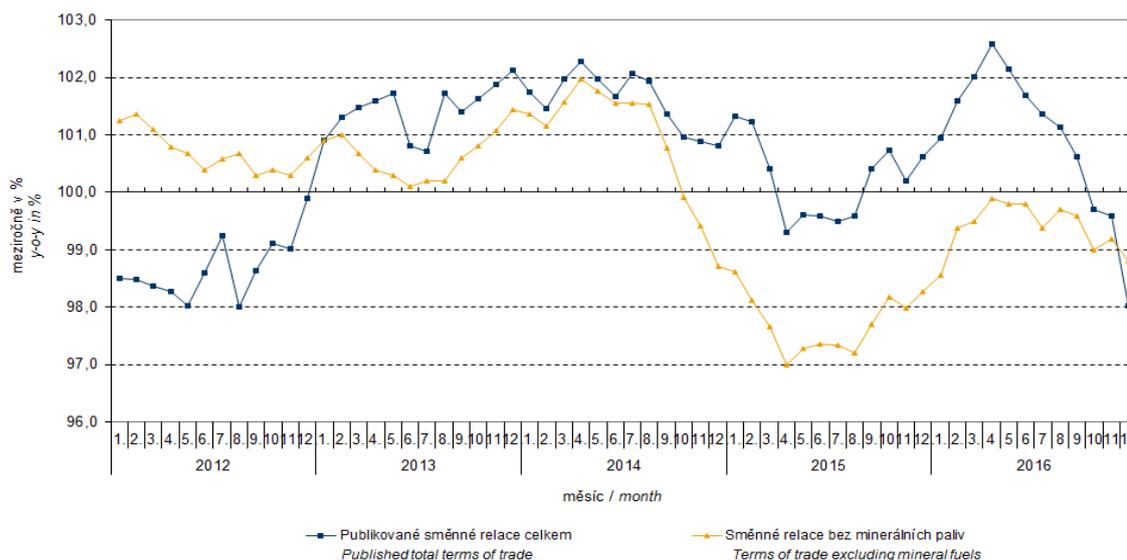
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Graph No. 10 demonstrates how the value of terms of trade would develop if the observed groups would not include that of 'mineral fuels, lubricants and related materials'.

Graf č. 10  
Graph No. 10

Publikované směnné relace a směnné relace s vyloučením minerálních paliv meziročně  
Published terms of trade and terms of trade excluding mineral fuels y-o-y



It can be observed in Graph No. 10 that the effects of 'mineral fuels, lubricants and related materials' increased the overall value of y-o-y terms of trade since Q1 2013. In Q4 2016 the situation began to reverse and 'mineral fuels, lubricants and related materials' have had again a downward effect on the value of terms of trade. It is, of course, related to the world market price development, especially in crude oil. Import prices, which, compared to export prices, include a higher proportion of crude materials, respond in a more sensitive way to price turbulences and therefore when prices of crude materials go up, terms of trade, as a rule, go down, and, conversely, when prices of crude materials fall, terms of trade grow.

### Closing summary

The exchange rate effects in **Q4 2016** caused a year-on-year decrease in export prices got even deeper, while a decline in import prices was getting slower. Export prices decreased more than import ones, year-on-year, and therefore terms of trade moved into negative values. If exchange rate non-adjusted, terms of trade would be negative as well. Values free of the exchange rate effects correspond to exchange rate adjusted indices – see Graphs Nos. 6, 7, and 9.

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**Tabulka 1: Rozklad přírůstků publikovaných a kurzově očištěných indexů cen vývozu a dovozu za prosinec 2016**  
**Table 1: Breakdown of export and import price indices - published and exchange rate adjusted for December 2016**

SITC	Název Name	Publikované Published				Očištěné Adjusted			
		Meziměsíční M-o-m	Meziroční Year-on-year			Meziměsíční M-o-m	Meziroční Year-on-year		
		12/2016	10/2016	11/2016	12/2016	12/2016	10/2016	11/2016	12/2016
<b>Rozklad přírůstků indexů vývozních cen</b> <i>Breakdown of export price indices</i>									
	<b>Celkem</b> <i>Total</i>	0,5	-2,1	-1,4	-0,5	0,5	-1,6	-0,9	-0,3
0	<b>Potraviny a živá zvířata</b> <i>Food and live animals</i>	0,0	0,0	-0,1	0,0	0,0	0,0	0,0	0,0
1	<b>Nápoje a tabák</b> <i>Beverages and tobacco</i>	0,0	0,0	0,0	-0,1	0,0	0,0	0,0	0,0
2	<b>Suroviny nepoživatelné, s výjimkou paliv</b> <i>Crude materials, inedible, except fuels</i>	0,0	-0,1	0,1	0,1	0,1	-0,1	0,1	0,1
3	<b>Minerální paliva, maziva a příbuzné materiály</b> <i>Mineral fuels, lubricants and related materials</i>	0,1	-0,2	-0,1	0,2	0,1	-0,2	-0,1	0,2
4	<b>Živočišné a rostlinné oleje</b> <i>Animal and vegetable oils, fats and waxes</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
5	<b>Chemikálie a příbuzné výrobky</b> <i>Chemicals and related products</i>	0,0	-0,3	-0,2	-0,2	0,0	-0,3	-0,2	-0,2
6	<b>Tržní výrobky tříděné hlavně podle materiálu</b> <i>Manufactured goods classified chiefly by material</i>	0,1	-0,5	-0,3	-0,1	0,1	-0,5	-0,2	-0,1
7	<b>Stroje a dopravní prostředky - z toho:</b> <i>Machinery and transport equipment - thereof:</i>	0,3	-1,0	-0,8	-0,4	0,2	-0,6	-0,5	-0,3
74	Stroje a zařízení všeobecně užívané v průmyslu, j.n. <i>General industrial machinery and equipment, n.e.s.</i>	0,0	-0,2	-0,2	-0,1	0,0	-0,1	-0,1	-0,1
77	Elektrická zařízení, přístroje a spotřebiče, j.n. <i>Electrical machinery, apparatus and appliances, n.e.s.</i>	0,2	0,0	0,1	0,3	0,1	0,0	0,1	0,2
78	Silniční vozidla <i>Road vehicles (including air-cushion vehicles)</i>	0,0	-0,3	-0,3	-0,2	0,0	0,0	0,0	0,0
8	<b>Průmyslové spotřební zboží</b> <i>Miscellaneous manufactured articles</i>	0,0	0,0	0,0	0,0	0,0	0,1	0,0	0,0
<b>Rozklad přírůstků indexů dovozních cen</b> <i>Breakdown of import price indices</i>									
	<b>Celkem</b> <i>Total</i>	1,3	-1,8	-1,0	1,5	1,0	-1,9	-1,0	1,0
0	<b>Potraviny a živá zvířata</b> <i>Food and live animals</i>	0,1	0,0	0,1	0,3	0,1	0,0	0,1	0,3
1	<b>Nápoje a tabák</b> <i>Beverages and tobacco</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
2	<b>Suroviny nepoživatelné, s výjimkou paliv</b> <i>Crude materials, inedible, except fuels</i>	0,1	0,0	0,1	0,2	0,1	0,0	0,0	0,1
3	<b>Minerální paliva, maziva a příbuzné materiály</b> <i>Mineral fuels, lubricants and related materials</i>	0,6	-0,8	-0,5	0,9	0,5	-0,8	-0,5	0,8
4	<b>Živočišné a rostlinné oleje</b> <i>Animal and vegetable oils, fats and waxes</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
5	<b>Chemikálie a příbuzné výrobky</b> <i>Chemicals and related products</i>	0,0	-0,2	-0,1	-0,1	0,0	-0,2	-0,1	0,0
6	<b>Tržní výrobky tříděné hlavně podle materiálu</b> <i>Manufactured goods classified chiefly by material</i>	0,3	-0,3	0,0	0,4	0,3	-0,2	0,0	0,4
7	<b>Stroje a dopravní prostředky - z toho:</b> <i>Machinery and transport equipment - thereof:</i>	0,2	-0,5	-0,5	-0,2	0,0	-0,7	-0,5	-0,6
74	Stroje a zařízení všeobecně užívané v průmyslu, j.n. <i>General industrial machinery and equipment, n.e.s.</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
75	Kancelářské stroje a zař. k automat. zpracování dat <i>Office machines and automatic data-processing machines</i>	0,1	-0,2	-0,2	-0,1	0,1	-0,2	-0,2	-0,2
77	Elektrická zařízení, přístroje a spotřebiče, j.n. <i>Electrical machinery, apparatus and appliances, n.e.s.</i>	0,1	-0,3	-0,3	-0,2	0,0	-0,3	-0,3	-0,3
78	Silniční vozidla <i>Road vehicles (including air-cushion vehicles)</i>	0,0	-0,1	-0,1	-0,1	0,0	-0,1	-0,1	-0,1
8	<b>Průmyslové spotřební zboží</b> <i>Miscellaneous manufactured articles</i>	0,0	0,0	-0,1	0,0	0,0	0,0	0,0	0,0

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Closing table gives published external trade price indices **without adjustment**.

Tabulka 2: Indexy cen vývozu a dovozu ve 4. čtvrtletí 2016

Table 2: Export and import price indices in Q4 2016

SITC	Název Name	Stejně období předchozího roku = 100 Corresponding period of previous year = 100				
		3Q/2016	10/2016	11/2016	12/2016	4Q/2016
<b>Indexy vývozních cen</b> Export price indices						
	<b>Celkem</b> Total	97,3	97,9	98,6	99,5	98,7
0	<b>Potraviny a živá zvířata</b> Food and live animals	97,7	98,1	98,6	100,7	99,1
1	<b>Nápoje a tabák</b> Beverages and tobacco	102,6	100,7	97,3	94,9	97,6
2	<b>Suroviny nepoživatelné, s výjimkou paliv</b> Crude materials, inedible, except fuels	92,9	97,7	102,9	102,6	101,1
3	<b>Minerální paliva, maziva a příbuzné materiály</b> Mineral fuels, lubricants and related materials	86,4	93,1	97,3	106,2	98,7
4	<b>Živočišné a rostlinné oleje</b> Animal and vegetable oils, fats and waxes	101,5	107,1	110,6	110,2	109,3
5	<b>Chemikálie a příbuzné výrobky</b> Chemicals and related products	92,2	95,9	96,5	97,3	96,6
6	<b>Tržní výrobky tříděné hlavně podle materiálu</b> Manufactured goods classified chiefly by material	97,0	97,2	98,3	99,4	98,3
7	<b>Stroje a dopravní prostředky</b> Machinery and transport equipment	98,3	98,3	98,4	99,3	98,7
8	<b>Průmyslové spotřební zboží</b> Miscellaneous manufactured articles	99,8	100,0	99,8	100,0	99,9
<b>Indexy dovozních cen</b> Import price indices						
	<b>Celkem</b> Total	96,3	98,2	99,0	101,5	99,6
0	<b>Potraviny a živá zvířata</b> Food and live animals	100,3	100,6	102,4	105,6	102,8
1	<b>Nápoje a tabák</b> Beverages and tobacco	101,9	103,2	103,3	103,5	103,3
2	<b>Suroviny nepoživatelné, s výjimkou paliv</b> Crude materials, inedible, except fuels	98,2	100,1	102,5	107,0	103,2
3	<b>Minerální paliva, maziva a příbuzné materiály</b> Mineral fuels, lubricants and related materials	79,2	90,7	94,1	112,3	98,5
4	<b>Živočišné a rostlinné oleje</b> Animal and vegetable oils, fats and waxes	97,1	99,3	99,1	99,4	99,3
5	<b>Chemikálie a příbuzné výrobky</b> Chemicals and related products	95,1	98,3	98,7	99,4	98,8
6	<b>Tržní výrobky tříděné hlavně podle materiálu</b> Manufactured goods classified chiefly by material	97,0	98,4	99,8	102,1	100,1
7	<b>Stroje a dopravní prostředky</b> Machinery and transport equipment	98,8	98,8	98,8	99,6	99,1
8	<b>Průmyslové spotřební zboží</b> Miscellaneous manufactured articles	98,4	99,3	99,2	99,6	99,3

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