

## ANALYSIS

16 November 2018

### External Trade Price Indices Development in Q3 2018

In Q3 2018, compared to Q2 2018, export prices and import prices increased by 1.1% and 1.9%, respectively. Terms of trade reached the value of 99.2%. Compared year-on-year, in Q3 2018 export prices grew by 1.6%, import prices increased by 2.6%, and terms of trade reached the value of 99.0%.

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

Export prices in Q3 2018, compared to Q2 2018, increased by 1.1% (in Q2 2018 they grew by 1.3%, q-o-q). Prices of 'mineral fuels, lubricants and related materials' grew by 9.7%, followed by price increases in 'miscellaneous manufactured articles' by 1.7%, 'manufactured goods classified chiefly by material' by 1.3%, and in 'machinery and transport equipment' by 0.3%. Prices did not see a decline in any of the groups of goods measured.

Import prices in Q3 2018, compared to Q2 2018, increased by 1.9% (in Q2 2018 they increased by 1.8%, q-o-q). A highest growth was recorded for 'mineral fuels, lubricants and related materials' by 9.3%, followed by those for 'chemicals and related products' by 2.2%, and for 'machinery and transport equipment' by 1.7%. The only prices that declined were those of 'beverages and tobacco' by 0.6%.

The terms of trade figures in Q3 2018, compared to Q2 2018, reached the value of 99.2% (in Q2 2018 they were 99.5%). Negative values of terms of trade were recorded namely for 'machinery and transport equipment' (98.6%) and for 'chemicals and related products' (99.9%). Positive values of terms of trade were recorded namely for 'food and live animals' (101.6%), 'miscellaneous manufactured articles' (100.9%), and for 'manufactured goods classified chiefly by material' (100.8%).

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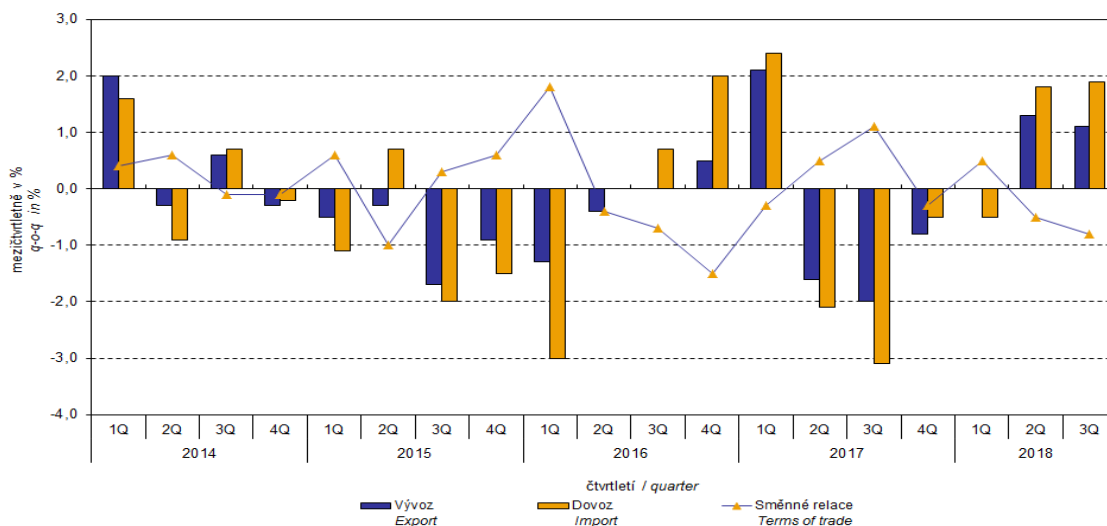
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Graf č. 1  
Chart No. 1

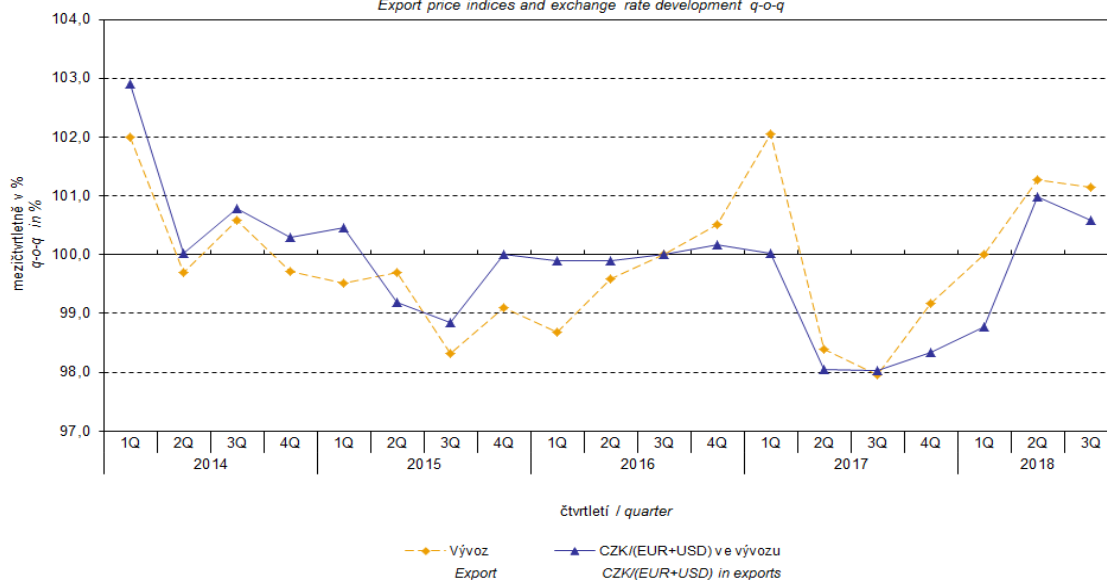
Vývoj indexů cen v zahraničním obchodě mezičtvrtletně  
Trend of price indices in external trade q-o-q



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  
Chart No. 2

Indexy cen vývozu a vývoj kurzu mezičtvrtletně  
Export price indices and exchange rate development q-o-q



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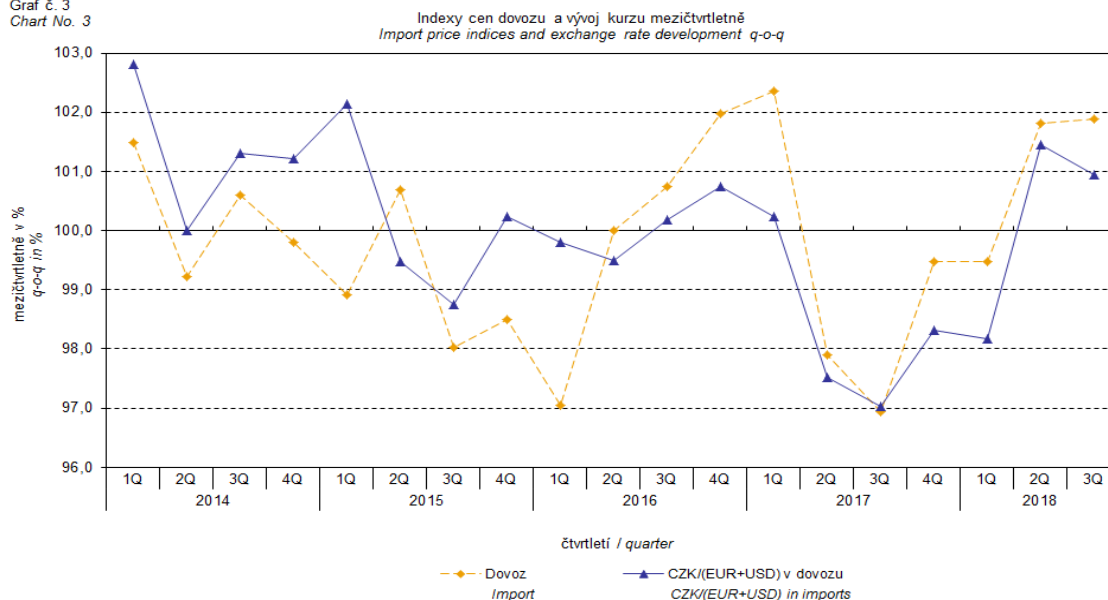
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Graf č. 3  
Chart No. 3



It can be seen from the aforementioned Graphs Nos. 2 and 3 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 Q3 2018 increased by 1.6%, y-o-y (in Q2 2018 they fell by 1.6%, y-o-y). The most growing prices were those of 'mineral fuels, lubricants and related materials' by 22.8%, of 'manufactured goods classified chiefly by material' by 3.6%, and of 'chemicals and related products' by 2.8%. Declines were recorded for prices of 'machinery and transport equipment' and 'food and live animals', identically by 0.3%, and those of 'miscellaneous manufactured articles' fell by 0.2%.

Import prices in Q3 2018 rose by 2.6%, y-o-y (in Q2 2018 they declined by 2.4%, y-o-y). Prices of 'mineral fuels, lubricants and related materials' soared by 33.3%, those of 'chemicals and related products' increased by 3.6%, of 'manufactured goods classified chiefly by material' by 1.5%, and prices of 'machinery and transport equipment' grew by 0.1%. Prices that declined most were those for 'food and live animals' identically by 4.1%, and for 'crude materials, inedible, except fuels' by 2.6%.

Terms of trade in Q3 2018 decreased year-on-year to reach the value of 99.0% (in Q2 2018 they were 100.8%) and went to negative values after a period of three quarters, see Graph No. 4 below. Negative values of terms of trade was recorded namely for 'mineral fuels, lubricants and related materials' (92.1%), for 'chemicals and related products' (99.2%), and for

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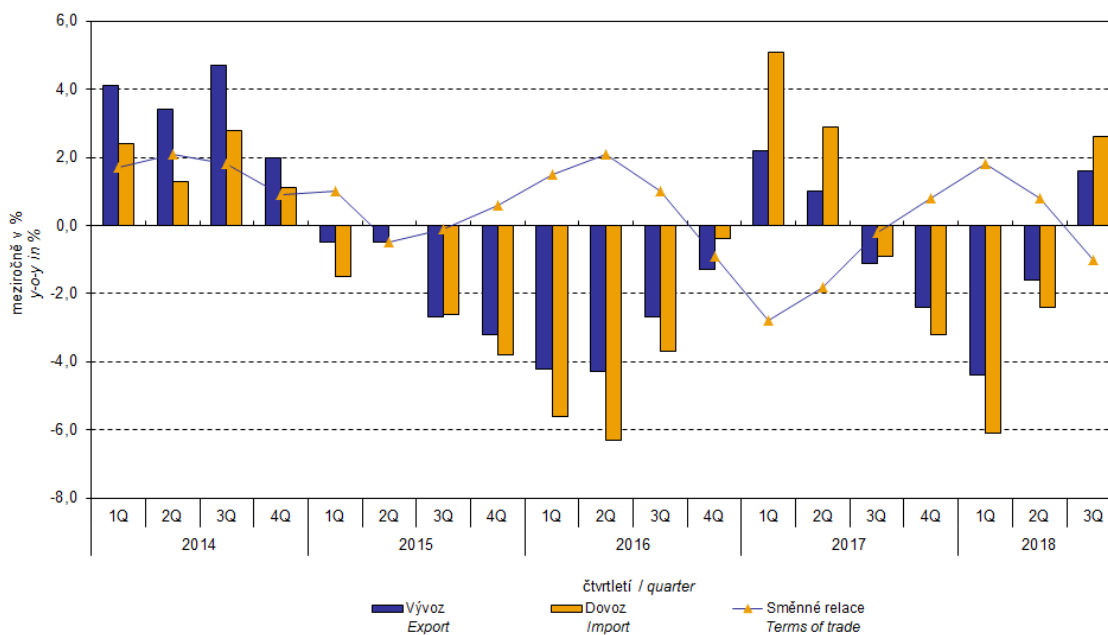
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'machinery and transport equipment' (99.6%). The highest positive values of terms of trade were recorded for 'crude materials, inedible, except fuels' (104.5%), followed by 'food and live animals' (104.0%), and by 'manufactured goods classified chiefly by material' (102.1%).

Graf č. 4  
Chart No. 4

Vývoj indexů cen v zahraničním obchodě meziročně  
Trend of price indices in external trade y-o-y



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

The Czech Statistical Office (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 for a month is then calculated the way that this exchange rate adjusted base price index of a month is related to the non-adjusted base price index of the same month of the last year. Adjusted quarter-on-quarter price indices are calculated in an analogous way since 2017. **Differences among adjusted and non-adjusted price indices may be substantial**. They can be clearly seen in Graphs Nos. 6 and 7 for Q1 2018, 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 26%. 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**.

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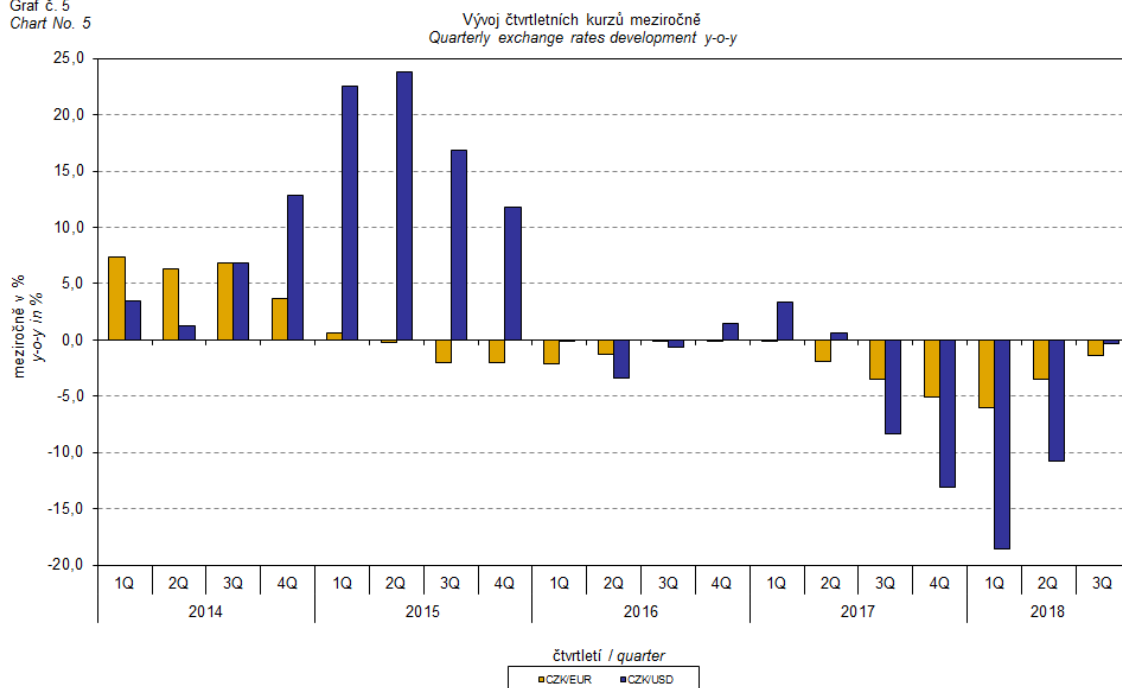
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The aforementioned exchange rate adjusted indices can be used to form the exchange rate adjusted breakdown of price indices increments. Table 1 gives the **published and exchange rate adjusted breakdowns of increments** of export and import price indices, 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.

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.

Graf č. 5  
Chart No. 5



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.

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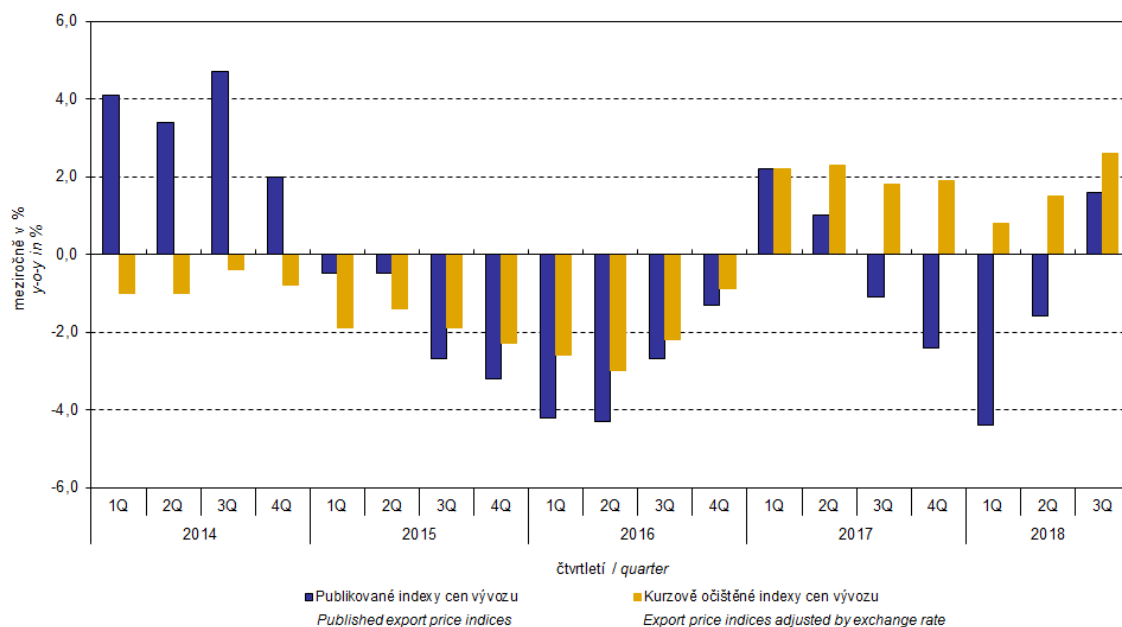
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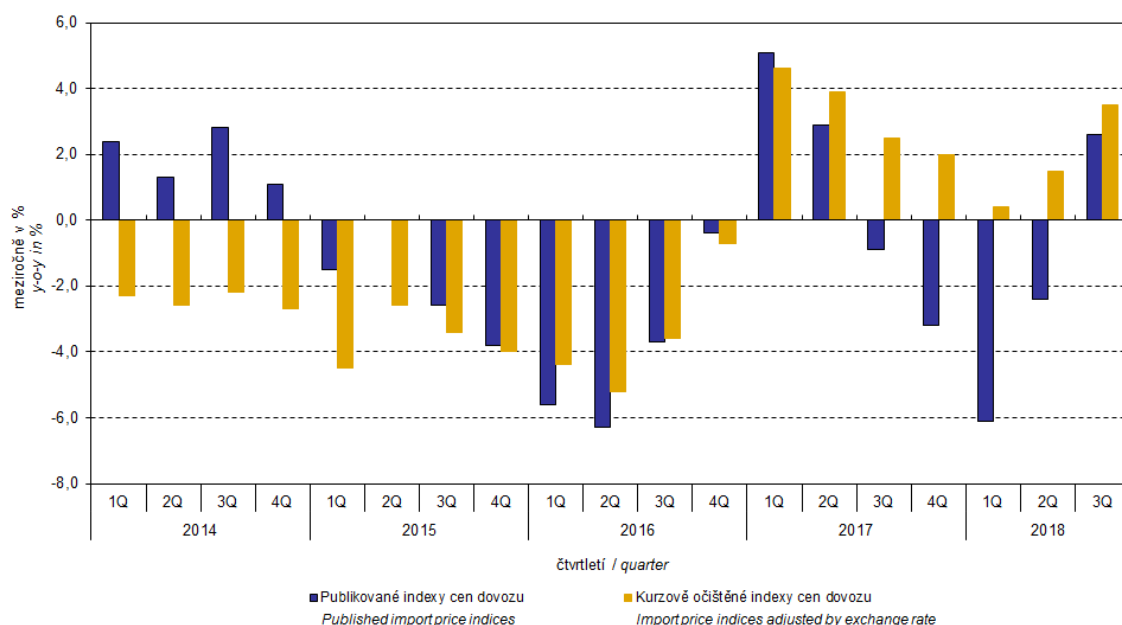
Graf č. 6  
Chart No. 6

Vývoj indexů vývozních cen meziročně  
Trend in export price indices y-o-y



Graf č. 7  
Chart No. 7

Vývoj indexů dovozních cen meziročně  
Trend in import price indices y-o-y



Graph No. 8 shows exchange rate influence on the value of year-on-year terms of trade.

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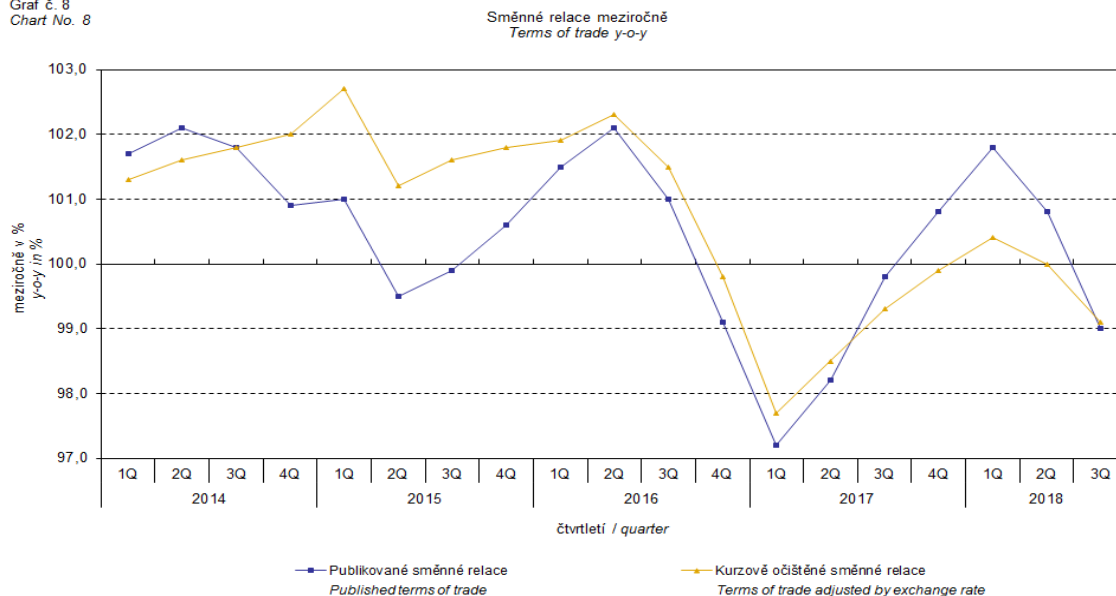
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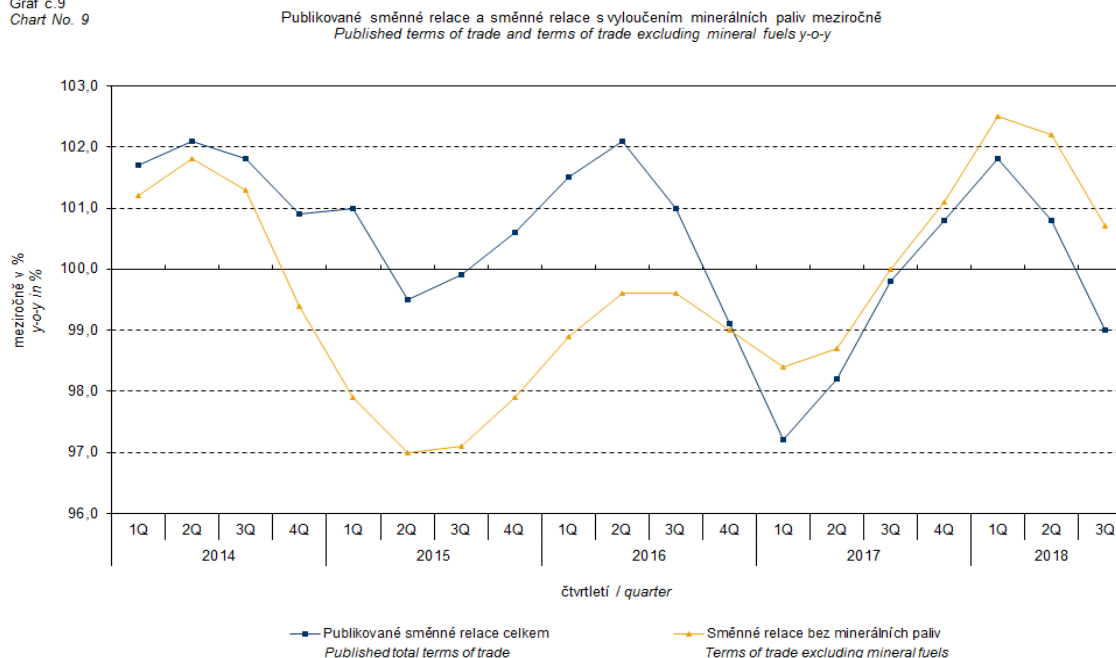
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Graf č. 8  
Chart No. 8



Graph No. 9 demonstrates how the value of terms of trade would develop if the observed groups of goods would not include that of 'mineral fuels, lubricants and related materials'.

Graf č. 9  
Chart No. 9



It can be observed in Graph No. 9 that the effects of 'mineral fuels, lubricants and related materials' were increasing the overall value of y-o-y terms of trade till Q4 2016. In Q1 2017 the situation began to reverse and 'mineral fuels, lubricants and related materials' have had

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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 Q3 2018 reduced a growth in export and import price indices year-on-year. Export prices grew year-on-year at lower pace than import prices, and therefore terms of trade reached negative values. If exchange rate unadjusted, terms of trade would be at 99.1%. Values free of the exchange rate effects correspond to exchange rate adjusted indices, see Graphs Nos. 6, 7, and 8.

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Tabulka 1: Rozklad přírůstků publikovaných a kurzově očištěných indexů cen vývozu a dovozu za 3. čtvrtletí 2018

Table 1: Breakdown of export and import price indices - published and exchange rate adjusted for 3Q 2018

SITC	Název Name	Publikované Published					Očištěné Adjusted				
		Meziodobový Year-on-year					Meziodobový Year-on-year				
		2Q/2018	07/2018	08/2018	09/2018	3Q/2018	2Q/2018	07/2018	08/2018	09/2018	3Q/2018
<b>Rozklad přírůstků indexů vývozních cen</b> <i>Breakdown of export price indices</i>											
	<b>Celkem</b> <i>Total</i>	-1,6	1,8	1,6	1,4	1,6	1,5	2,5	2,7	2,5	2,6
0	<b>Potraviny a živá zvířata</b> <i>Food and live animals</i>	-0,1	0,0	0,0	0,0	0,0	-0,1	0,0	0,0	0,0	0,0
1	<b>Nápoje a tabák</b> <i>Beverages and tobacco</i>	0,0	0,0	0,1	0,1	-0,1	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>	0,0	0,1	0,1	0,0	0,0	0,0	0,1	0,1	0,0	0,1
3	<b>Minerální paliva, maziva a příbuzné materiály</b> <i>Mineral fuels, lubricants and related materials</i>	0,2	0,6	0,8	0,7	1,0	0,3	0,6	0,8	0,8	0,7
5	<b>Chemikálie a příbuzné výrobky</b> <i>Chemicals and related products</i>	-0,1	0,2	0,2	0,2	0,3	0,1	0,2	0,3	0,2	0,3
6	<b>Tržní výrobky tříděné hlavně podle materiálu</b> <i>Manufactured goods classified chiefly by material</i>	0,3	0,9	0,7	0,6	1,2	0,8	1,0	0,9	0,8	0,9
7	<b>Stroje a dopravní prostředky - z toho:</b> <i>Machinery and transport equipment - thereof:</i>	-1,5	0,1	-0,2	-0,3	-0,5	0,4	0,6	0,5	0,5	0,5
74	Stroje a zařízení všeobecně užívané v průmyslu, j.n. <i>General industrial machinery and equipment, n.e.s.</i>	0,0	0,3	0,2	0,1	0,2	0,3	0,3	0,3	0,2	0,3
77	Elektrická zařízení, přístroje a spotřebiče, j.n. <i>Electrical machinery, apparatus and appliances, n.e.s.</i>	-0,2	0,0	-0,1	-0,2	-0,1	0,0	0,0	0,0	-0,1	0,0
78	Silniční vozidla <i>Road vehicles (including air-cushion vehicles)</i>	-0,6	0,2	0,0	0,0	0,0	0,2	0,3	0,3	0,3	0,3
8	<b>Průmyslové spotřební zboží</b> <i>Miscellaneous manufactured articles</i>	-0,4	-0,1	-0,1	0,1	-0,3	0,0	0,0	0,1	0,2	0,1
<b>Rozklad přírůstků indexů dovozních cen</b> <i>Breakdown of import price indices</i>											
	<b>Celkem</b> <i>Total</i>	-2,4	2,5	2,9	2,4	2,6	1,5	3,5	3,8	3,5	3,5
0	<b>Potraviny a živá zvířata</b> <i>Food and live animals</i>	-0,5	-0,3	-0,2	-0,2	-0,2	-0,4	-0,3	-0,2	-0,1	-0,2
1	<b>Nápoje a tabák</b> <i>Beverages and tobacco</i>	0,1	0,0	0,0	0,1	0,0	0,1	0,1	0,1	0,1	0,1
2	<b>Suroviny nepoživatelné, s výjimkou paliv</b> <i>Crude materials, inedible, except fuels</i>	-0,3	-0,1	0,0	0,0	-0,1	-0,2	-0,1	0,0	0,0	0,0
3	<b>Minerální paliva, maziva a příbuzné materiály</b> <i>Mineral fuels, lubricants and related materials</i>	1,0	2,2	2,2	2,2	2,2	1,7	2,4	2,4	2,3	2,3
5	<b>Chemikálie a příbuzné výrobky</b> <i>Chemicals and related products</i>	-0,1	0,4	0,5	0,5	0,5	0,2	0,5	0,6	0,6	0,5
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	0,3	0,5	0,6	0,5	0,3	0,5
7	<b>Stroje a dopravní prostředky - z toho:</b> <i>Machinery and transport equipment - thereof:</i>	-2,0	-0,1	0,1	-0,1	0,0	-0,2	0,4	0,5	0,4	0,4
74	Stroje a zařízení všeobecně užívané v průmyslu, j.n. <i>General industrial machinery and equipment, n.e.s.</i>	-0,2	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,1	0,1
75	Kancelářské stroje a zař. k automat. zpracování dat <i>Office machines and automatic data-processing machines</i>	-0,4	-0,2	-0,1	-0,1	-0,1	-0,1	-0,1	-0,1	-0,1	-0,1
77	Elektrická zařízení, přístroje a spotřebiče, j.n. <i>Electrical machinery, apparatus and appliances, n.e.s.</i>	-0,5	0,0	0,0	-0,1	0,0	0,0	0,1	0,1	0,0	0,1
78	Silniční vozidla <i>Road vehicles (including air-cushion vehicles)</i>	-0,1	0,3	0,2	0,2	0,2	0,1	0,3	0,3	0,3	0,3
8	<b>Průmyslové spotřební zboží</b> <i>Miscellaneous manufactured articles</i>	-0,5	-0,1	0,0	-0,2	-0,1	-0,2	-0,1	-0,1	-0,1	-0,1

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

Tabulka 2: Indexy cen vývozu a dovozu ve 3. čtvrtletí 2018

Table 2: Export and import price indices in Q3 2018

SITC	Název Name	Stejné období předchozího roku = 100 Corresponding period of previous year = 100				
		2Q/2018	07/2018	08/2018	09/2018	3Q/2018
<b>Indexy vývozních cen</b> <i>Export price indices</i>						
	<b>Celkem</b> <i>Total</i>	98,4	101,8	101,6	101,4	101,6
0	<b>Potraviny a živá zvířata</b> <i>Food and live animals</i>	96,4	99,5	99,3	100,2	99,7
1	<b>Nápoje a tabák</b> <i>Beverages and tobacco</i>	101,7	104,8	103,9	104,0	104,2
2	<b>Suroviny nepoživatelné, s výjimkou paliv</b> <i>Crude materials, inedible, except fuels</i>	98,5	103,8	102,2	99,6	101,8
3	<b>Minerální paliva, maziva a příbuzné materiály</b> <i>Mineral fuels, lubricants and related materials</i>	106,5	119,1	125,2	124,1	122,8
5	<b>Chemikálie a příbuzné výrobky</b> <i>Chemicals and related products</i>	97,5	102,8	103,5	102,0	102,8
6	<b>Tržní výrobky tříděné hlavně podle materiálu</b> <i>Manufactured goods classified chiefly by material</i>	101,6	104,3	103,6	102,9	103,6
7	<b>Stroje a dopravní prostředky</b> <i>Machinery and transport equipment</i>	97,2	100,1	99,6	99,4	99,7
74	Stroje a zařízení všeobecně užívané v průmyslu, j.n. <i>General industrial machinery and equipment, n.e.s.</i>	100,6	103,4	102,0	101,2	102,2
77	Elektrická zařízení, přístroje a spotřebiče, j.n. <i>Electrical machinery, apparatus and appliances,</i>	97,1	100,2	99,5	97,9	99,2
78	Silniční vozidla <i>Road vehicles (including air-cushion vehicles)</i>	97,2	100,2	99,8	99,9	100,0
8	<b>Průmyslové spotřební zboží</b> <i>Miscellaneous manufactured articles</i>	96,6	99,4	99,5	100,4	99,8
<b>Indexy dovozních cen</b> <i>Import price indices</i>						
	<b>Celkem</b> <i>Total</i>	97,6	102,5	102,9	102,4	102,6
0	<b>Potraviny a živá zvířata</b> <i>Food and live animals</i>	92,7	94,3	96,3	97,2	95,9
1	<b>Nápoje a tabák</b> <i>Beverages and tobacco</i>	105,0	106,0	105,3	106,1	105,8
2	<b>Suroviny nepoživatelné, s výjimkou paliv</b> <i>Crude materials, inedible, except fuels</i>	86,9	95,3	97,7	99,3	97,4
3	<b>Minerální paliva, maziva a příbuzné materiály</b> <i>Mineral fuels, lubricants and related materials</i>	116,3	133,0	133,9	132,9	133,3
5	<b>Chemikálie a příbuzné výrobky</b> <i>Chemicals and related products</i>	98,5	103,1	103,9	103,8	103,6
6	<b>Tržní výrobky tříděné hlavně podle materiálu</b> <i>Manufactured goods classified chiefly by material</i>	99,4	102,6	101,5	100,4	101,5
7	<b>Stroje a dopravní prostředky</b> <i>Machinery and transport equipment</i>	95,2	99,9	100,4	99,9	100,1
74	Stroje a zařízení všeobecně užívané v průmyslu, j.n. <i>General industrial machinery and equipment, n.e.s.</i>	96,3	99,5	99,6	99,7	99,6
75	Kancelářské stroje a zař. k automat. zpracování dat <i>Office machines and automatic data-processing</i>	91,6	97,0	99,0	98,9	98,3
77	Elektrická zařízení, přístroje a spotřebiče, j.n. <i>Electrical machinery, apparatus and appliances,</i>	95,3	99,9	100,2	99,2	99,8
78	Silniční vozidla <i>Road vehicles (including air-cushion vehicles)</i>	98,7	102,7	101,9	101,4	102,0
8	<b>Průmyslové spotřební zboží</b> <i>Miscellaneous manufactured articles</i>	95,4	98,4	98,5	98,1	98,3

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