



# **Russia and Norway: do equity markets react to the world oil price?**

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## The main research goal

- Intuition and common sense say that equity prices in oil exporting countries should strongly react to world oil price dynamics. Such a view is actively promoted by mass media
- The main reach goal is to test reaction of main national equity indexes in Russia and Norway to changes in Brent price



## By some macroeconomic proportions and equity market characteristics Russia and Norway are quite close

Capitalization of equity markets exceeds \$300 bln only in 6 oil exporters

| Country  | Market capitalization, \$ bln | Capitalization to GDP, % |
|--|-------------------------------|--------------------------|
| Canada   | 1907                          | 108                      |
| Australia  | 1198                          | 78                       |
| <b>Russia</b>  | <b>796</b>                    | <b>41</b>                |
| Mexico   | 409                           | 35                       |
| Indonesia  | 390                           | 44                       |
| Saudi Arabia   | 339                           | 52                       |
| <b>Norway</b>  | <b>219</b>                    | <b>44</b>                |
| Columbia   | 201                           | 55                       |
| Qatar  | 125                           | 68                       |
| Iran   | 107                           | 22                       |
| Share in cumulative capitalization of oil exporters (32 countries) | <b>95%</b>                    |                          |

Russia - Norway comparisons (2011 or the latest year available)

### Macroeconomy

merchandise export to GDP

Russia – 27%, Norway – 31%

fuel export to GDP

Russia – 17%, Norway – 20%

### Equity market

market capitalization to GDP

Russia – 41%, Norway – 44%

stock market trade turnover to GDP

Russia – 54%, Norway – 52%

share of oil and gas and energy companies in total market capitalization

Russia (RTS) – 52% + 5%,

Norway (OSE) – 22% + 29%

high state share in listed companies' capital

Russia – > 50%; Norway – 35-40%

high share of foreigners in trade turnover

Russia – > 40%; Norway – 60-70%

low participation of households

low liquidity, infrequent trade, limited number of companies regularly traded



## Basic model – 7 factor VAR estimated on monthly data for 2000 – 2012 and two subperiods: 2000-2005 and 2006-2012

|                            | Order of variables in 7 factor VAR model                      | Results (factors with significant impact on national equity index profitability)   |                                 |
|----------------------------|---|--|---------------------------------|
|                            |   | RUSSIA   | NORWAY                          |
| <b>Global risk-factors</b> | Global short-term interest rate (US 3 months rate as a proxy) |  | weakly significant              |
|                            | S&P500 Index  | weakly significant in 2000–2005  | significant                     |
|                            | Dollar Index  |  | significant                     |
|                            | Brent oil price   |  |                                 |
| <b>Local risk-factors</b>  | Exchange rate of national currency/dollar                     |  |                                 |
|                            | Internal sort-term interest rate                              |  | periodically weakly significant |
| <b>Stock exchange</b>      | National equity index   | always very significant, the only and overwhelmingly significant factor after 2005 | significant                     |



## Various specification of price signal are examined

- Difference in oil price
- Only positive changes in oil price
- Only negative changes in oil price
- Net oil price (after Hamilton, 1996)
- 3 months future price minus spot price
- 3 month future price minus spot price larger than 3 dollars



## **Low quality of the underlying assets explains specific reaction of Russian equity market to oil price**

- High market risk
- Low free float
- Comparatively low dividend paid to investors
- Special tax regime for export earnings of oil and gas companies
- Low transparency and frequent violations of established corporate procedures



## Market risk of Russian equities is comparatively high. Estimated mandatory reserve capital costs as % of investment position (historical Value-at-Risk method, daily data for 2000 – 2012)

|                       | confidence level |       |     |
|-----------------------|------------------|-------|-----|
|                       | 99%              | 97,5% | 95% |
| <b>Gazprom Neft</b>   | 9,9              | 6,8   | 4,7 |
| <b>Tatneft</b>        | 9,4              | 6,7   | 4,8 |
| <b>Rosneft</b>        | 9,3              | 6,8   | 4,9 |
| <b>Surgutneftegas</b> | 9,1              | 6,4   | 4,8 |
| <b>Gazprom</b>        | 8,8              | 6,5   | 4,5 |
| <b>Lukoil</b>         | 7,8              | 6,7   | 5,7 |
| <b>Statoil</b>        | 6,5              | 5,0   | 3,8 |
| <b>for comparison</b> |                  |       |     |
| <b>Exxon Mobil</b>    | 4,5              | 3,5   | 2,6 |
| <b>Chevron</b>        | 4,5              | 3,5   | 2,7 |



## Largest Russian public companies have low free float

|                | Listed on stock exchange | ADR/GDR, per cent of equity capital | Share of exports (foreign sales) in total sales, % | Free float, % |
|----------------|--------------------------|-------------------------------------|--|---------------|
| Gazprom        | 1993                     | 26                                  | 66,6 (2012)  | 46            |
| Sberbank       | 1993                     | ≤ 25                                | –  | 48            |
| Lukoil         | 1993                     | 63                                  | 78,2 (2013)  | 57            |
| Magnit         | 2006                     | 30                                  | –  | 54            |
| Surgutneftegas | 1993                     | 6,5                                 | –  | 25            |
| Novatek        | 1994                     | 30                                  | 26,3 (2013)  | 27            |
| Rosneft        | 2006                     | 8,8                                 | 77,4 (2013)  | 12            |
| Norilsk Nickel | 1994                     | 42,6                                | 85 (2011)  | 30            |
| MTS            | 2000                     | 37,6                                | –  | 49            |
| VTB            | 1998                     | 13                                  | –  | 39            |
| Tatneft        | 1994                     | 30                                  | 96,2 (2012)  | 32            |
| Sistema        | 1993                     | 19 (2012)                           | –  | 36            |
| Uralkali       | 1992                     | 16,6                                | 83,6 (2012)  | 22            |
| Bashneft       | 1995                     | –                                   | 56,9 (2012)  | 12            |
| Megafon        | 2002                     | –                                   | –  | 15            |
| Rostelecom     | 1993                     | 3                                   | –  | 28            |
| Alrosa         | 1992                     | –                                   | 68,6 (2012)  | 23            |
| RusHydro       | 2004                     | 5,2                                 | –  | 34            |
| Severstal      | 1993                     | 16,2                                | 55,5 (2013)  | 21            |
| NLMK           | 1992                     | 8                                   | 63,8 (2012)  | 14            |



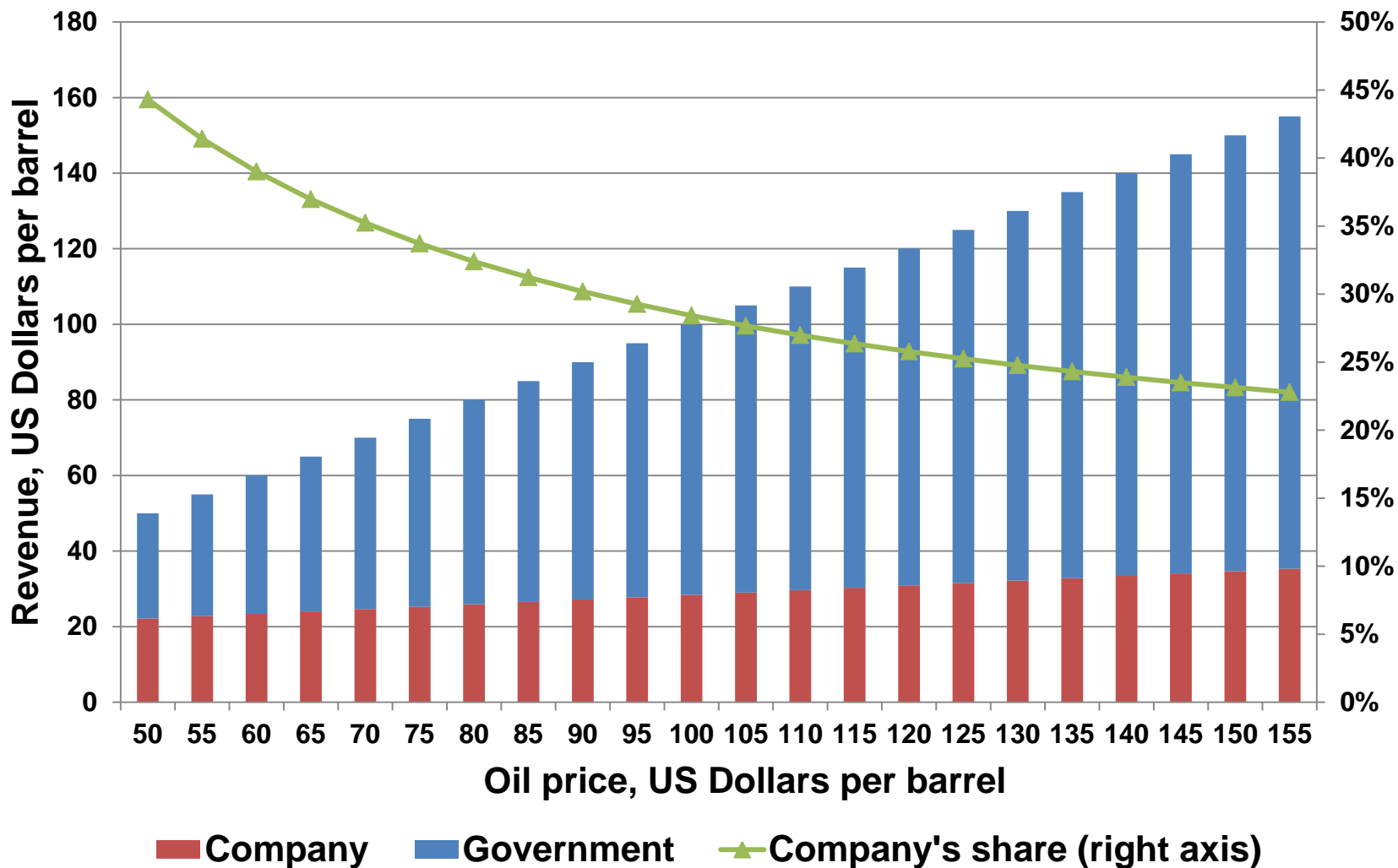


# Russian oil and gas companies pay comparatively low dividends

|                          | 2007 | 2008  | 2009  | 2010 | 2011 | 2012 | Average for 2007–2012 гг. |
|--------------------------|------|-------|-------|------|------|------|---------------------------|
| <b>Gazprom</b>           | 9,9  | 1,2   | 7,3   | –    | 16,3 | 11,6 | 9,3                       |
| <b>Rosneft</b>           | 3,9  | 7,4   | 15,5  | 9,9  | 11,7 | 23,4 | 12,0                      |
| <b>Lukoil</b>            | 12,9 | 13,9  | 20,8  | 18,4 | 18,4 | 19,3 | 17,3                      |
| <b>Gazprom Neft</b>      | –    | 17,1  | 18,4  | 24,1 | 22,0 | –    | 20,4                      |
| <b>Tatneft</b>           | 23,5 | 124,1 | 26,8  | 23,8 | 17,6 | 20,8 | 39,4                      |
| <b>Novatek</b>           | 33,2 | 33,4  | 29,4  | 24,4 | 12,7 | 28,4 | 26,9                      |
| <b>for comparison</b>    |      |       |       |      |      |      |                           |
| <b>Statoil</b>           | 30,4 | 32,4  | 104,3 | 52,3 | 26,3 | 31,2 | 46,2                      |
| <b>Exxon Mobil</b>       | 18,6 | 17,8  | 41,6  | 28,8 | 22,7 | 23,2 | 25,5                      |
| <b>Royal Dutch Shell</b> | 28,7 | 36,2  | 84,1  | 50,7 | 33,8 | 40,8 | 45,7                      |
| <b>Chevron</b>           | 22,4 | –     | 50,6  | 29,8 | 22,8 | 26,1 | 30,3                      |
| <b>Total</b>             | 25,6 | 21,6  | 64,2  | 50,7 | 43,9 | –    | 41,2                      |



# Special tax regime for oil and gas export revenues diminishes motivations for owners and managers to increase corporate efficiency





## Ratio of actual to calculated capitalization (%) for Russian oil companies is comparatively low

Simple model:  $\ln Y = \text{const} + \alpha \cdot \ln Q + \beta \cdot \ln R$ , where: Y – market capitalization; Q – oil and gas production; R – oil and gas reserves. Coefficients were estimated for 8 world largest integrated oil companies for the period 2006 – 2012 and applied to Russian and Norwegian oil companies

|                | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|----------------|------|------|------|------|------|------|
| Gazprom        | 6    | 10   | 10   | 9    | 7    | –    |
| Rosneft        | 20   | 43   | 36   | 29   | 38   | 20   |
| Lukoil         | 12   | 23   | 21   | 20   | 24   | 23   |
| Surgutneftegas | 16   | 27   | 30   | –    | –    | –    |
| GazpromNeft    | 17   | 38   | 27   | 26   | 30   | 18   |
| Tatneft        | 10   | 25   | 22   | 23   | 24   | 21   |
| Bashneft       | –    | 31   | 37   | 32   | 49   | 42   |
| Novatek        | 10   | 23   | 37   | 39   | 26   | 27   |
| for comparison |      |      |      |      |      |      |
| Statoil        | 69   | 107  | 104  | 111  | 107  | 102  |



# Main conclusions

First, oil price shocks transmit into the equity markets simultaneously with other information signals – interest rates, dollar index, S&P500 index. Due to the full integration of physical oil market into the financial market these more powerful signals translate information on oil price developments. In the current world economic system it is impossible to separate oil price signal from the set of global risk factors.

Second, long-established mature Norwegian equity market reacts to changes in dollar index and S&P500 index and to a smaller degree to global and local short-term interest rates. Emerging Russian equity market since the middle of the last decade does not react to any systemic risk factors. It is driven by its own specific shocks which could be hardly systemically classified.