

Do Good Governance Provisions Shelter Investors from Contagion? Evidence from the Russian Crisis.

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Abstract

This paper studies how the Russian crisis of 1998 affected listed firms in transition economies. The data cover 417 companies that were listed before the Russian crisis, and include financial, industry, ownership, and stock market information. Results show that stock returns were lower for firms competing with imports from Russia, for firms exporting products to Russia, for more levered firms, for firms without a foreign blockholder, and for firms operating in countries with poor legal shareholder protection. The paper presents evidence that both firm- and country-level characteristics are important in overcoming the effects of a crisis. Firm-specific characteristics, however, play a bigger role for companies operating in countries with weaker corporate governance. The data show that, for most of the firm characteristics, more exposed companies in countries with better investor protection perform at least as good as or better than less exposed firms in countries with weaker investor protection.

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1. Introduction

On August 17, 1998 the Russian government announced the devaluation of the rouble, and a three-month moratorium on the payment of external debts by commercial banks. Within days, the rouble exchange rate plummeted, leading to mass bankruptcies of commercial banks and losses of savings and jobs for millions of Russians. This black Monday caused adverse effects on economies far beyond the borders of the Russian Federation. Due to geographical, trade, and financial links, the transition economies were among the ones most severely hit by the Russian virus. In this paper, I ask the following questions: Which firms were most affected by the crisis? What explains the persistence of the shock in transition economies? Do firm characteristics matter more than country characteristics?

Following Forbes (2004), I focus on five channels by which crisis in one country can be transmitted to firms in other countries: *product competitiveness*, an *income* effect, a *credit crunch*, a *forced-portfolio recomposition*, and a *wake-up call* effect. The *product competitiveness* theory (e.g., as modeled in Corsetti et al., 2000) suggests that if one country devalues its currency, exports from this country will become relatively less expensive in other countries. As a result, the competitiveness of domestically produced products against these imports decreases. If the *product competitiveness* effect is important, we can expect lower stock returns for firms that compete with imports from Russia. The *income* effect suggests that aggregate demand in Russia goes down during the crisis. Therefore, firms that export to Russia should face reduced demand, and resultantly lower stock returns. The *credit crunch* effect (e.g., Goldfajn and Valdés, 1997) means that crisis in one country reduces international financial liquidity and makes borrowing for firms in other countries more costly. As a result, higher levered companies should be more negatively affected by crisis, and therefore experience lower stock returns. The *forced-portfolio recomposition* effect (e.g., Valdés, 2000)

suggests that a crisis in one market can reduce the liquidity of individual investors, forcing them to sell assets in other countries in order to satisfy margin calls or to meet regulatory requirements. Finally, the *wake-up call* effect suggests that a crisis in one country can force investors to reassess the sustainability of macroeconomic fundamentals and corporate governance systems in countries with similar characteristics (e.g., Claessens et al., 2001; Johnson et al., 2000). The investors can react by pulling out from countries and firms that they believe to be the next crisis suspect.

Using company data from 417 firms in transition countries, I evaluated the effect of firm, industry, and country characteristics on short-term (one month period around black Monday) and long-term (one year after the crisis) stock returns. Consistent with Forbes (2004), I found that trade channels were important mechanisms transmitting the Russian crisis to the CEE markets. In particular, firms operating in industries that have substantial exports to Russia, and in industries that compete with imports from Russia, were more severely hit by the crisis. I also found evidence of a *forced-portfolio recomposition* effect. Companies with a presumably higher presence of institutional investors, as proxied for by larger firm size and greater stock liquidity, experienced sharper declines in short-term returns. The results show that the recovery was faster (long-term returns were higher) in firms with lower financial leverage and with the presence of a foreign blockholder. In this paper, I use the presence of a foreign blockholder (with at least 10% of capital) as a measure of better internal corporate governance. Foreign investors tend to pick better-governed firms, and, moreover, they can provide a monitoring role once they have committed substantial capital to the company.

The data show that external corporate governance, measured by the *Rule of Law* index – a score that ranges from 0 to 10 and measures the tradition for law and order, played a role in the speed of recovery in the transition economies. In most cases, less exposed firms (i.e.

the ones with no trade linkages with Russia, smaller size, foreign blockholder presence, and lower leverage) located in bad governance countries had lower long-term returns than exposed firms in good governance countries. In this context, the paper offers additional evidence to the view that countries do matter, i.e., the legal protection of investors is an important determinant of stock returns, which can outweigh the importance of firm-specific characteristics.

This work is related to several papers that focus on explaining stock returns during a crisis. Johnson et al. (2000) look at country level variations. Forbes (2004) studies firm-level trade and financial data, but disregards internal corporate governance measures (e.g., ownership structure). Mitton (2002) and Lemmon and Lins (2003) develop extensive firm-level corporate governance measures, but disregard trade linkages. The question of the relative importance of firm-level vs. country-level characteristics has been previously addressed by Durnev and Kim (2004), and Klapper and Love (2003). This paper contributes to the literature by disentangling the various crisis transmission channels, and analyzes firm-, industry- and country-level measures. Overall, the paper adds to our knowledge about investor behavior during periods of external shocks.

The paper is organized as follows. Section 2 describes the sample. Section 3 presents univariate and bivariate tests of differences in stock returns, and Section 4 presents the more complete regression analysis. Section 5 offers a robustness check. Conclusions follow in Section 6.

2. Sample and summary statistics

I chose to focus on the transition economies because of their geographical and historical proximity to the crisis country – Russia. The crisis offers a good opportunity to study the effects of firm-, industry-, and country-characteristics on stock returns, as it

represents an external shock to the other countries in the region. The transition economies provide an interesting laboratory to study the phenomenon of how from a rather similar starting point (transition from centrally-planned economy), the countries chose very different policies and followed different trajectories of financial development.² My main hypothesis is that the severity of the Russian virus on central and eastern European companies can be linked to the achieved corporate governance systems and financial developments in each country at the time of the crisis.

The complete list of transition countries comes from Claessens et al. (2000), and includes 26 countries from central and eastern Europe and the Baltics, the CIS, and south-eastern Europe. The sample includes all firms from transition countries that are covered either by *Datastream* or *Worldscope*, and that have available stock price data prior to the Russian crisis. This results in an initial sample of 417 firms from 10 countries (Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia). By far the largest country in the region, Poland provides the highest number of sample companies (138 firms, or 33% of total). The Czech Republic, Romania, Hungary, and Lithuania follow with 82, 51, 44 and 43 companies, respectively. The Slovenian sample includes 19 companies, while Estonia and Slovakia each have 14 companies. The only two countries with less than 10 companies are Croatia and Latvia, with 3 and 9 firms, respectively. The sample covers more than 80% of total market capitalization in the ten countries in 1998.

My primary valuation measure is a firm's cumulative stock return (buy-and-hold return) over the crisis period and one year after. The short-term return is measured from the end of July 1998 to the end of August 1998, while the long-term return is from the end of August 1998 to the end of August 1999. The total return is the sum of short-term and long-

² See Berglöf and Pajuste (2003) for a more elaborate discussion on the "Great Divide" between countries in

term return; all returns are calculated as logarithmic differences that allow summation of returns over periods. The shortest available period for short-term returns is one month, because, in addition to data from Datastream, I incorporated stock price data from Worldscope, which provides only end-of-month prices.³ I measured performance in local currency to net out any effects of exchange rates that are common to all firms within a country (the same methodology is used in Lemmon and Lins (2003)). The results, however, are very similar if I use returns in US dollars. Short-term returns were not available for 7 firms, while long-term returns for 3 firms were unavailable.

I use the five crisis transmission channels presented in Section 1 to explore which mechanisms dominated in explaining differences in stock returns across the sample countries. The five channels are, again: *product competitiveness*, an *income* effect, a *credit crunch*, a *forced portfolio recomposition*, and a *wake-up call* effect. As a measure for *product competitiveness*, I use a dummy variable that takes a value of 1 if the firm produces products that are among the two largest import categories from Russia in a given country (based on HS industry codes). Table 1 shows the two largest import categories from Russia for each country, and the respective SIC codes. We can observe that mineral products (SIC2: 29) represent the largest import group from Russia in all countries. As a measure for *income* effect, I use a dummy variable that takes a value of 1 if the firm produces products that are among the two largest export categories to Russia in a given country. From Table 1 we can see that exporting industries are more heterogeneous than import categories. For example, machinery and mechanical appliances (SIC2: 35-36), and transportation equipment (SIC2: 37), are two common exporting industries. Although a more precise measure for *income* effect would be the estimate of direct trade exposure to Russia for each company, this

central and eastern Europe.

³ By limiting the sample to Datastream only, I would be forced to exclude all the firms that were de-listed before 2000, because price series for those firms are not available in Datastream anymore.

information is unfortunately lacking for most of the firms in the sample. Another proxy for *income* effect is the actual sales growth in year 1998. If a firm had a substantial proportion of sales directed towards Russia, it should have experienced a drop in net sales.

As a measure for a potential *credit crunch*, I use the ratio of total loans to total assets. If a firm relies on loan financing, adverse effects on international financial liquidity can reduce the firm's ability to refinance its loans, as well as increase the cost of financing, i.e., higher interest rates. This should have a negative effect on the firm's stock performance. I use several measures to proxy the *forced portfolio recomposition* effect. Margin calls and regulatory requirements in one country can force investors to liquidate their positions in other markets to meet the short-term liquidity constraints. Institutional investors are the most likely suspects to be faced with these constraints. Lacking direct measures for institutional investor presence in a company, I assume that these investors are more likely to invest in the largest and most liquid firms in a given country. As a measure for liquidity, I use the ratio of number of days with non-zero trading volume divided by the total number of trading days in the first half of 1998 (January 1 – June 30, 1998).⁴ Firm size is measured by the natural logarithm of net sales, in 1997.

As suggested by Johnson et al. (2000), Mitton (2002), and Lemmon and Lins (2003), the *wake-up call* effect implies that firms in countries with poorer investor protection and with weaker firm-level corporate governance should experience a larger drop in stock returns during the crisis. The causes of the crisis were different in Asia and Russia, so the *wake-up call* effect is not directly applicable to the Russian crisis. However, I hypothesize that the level of country-level and firm-level corporate governance can play a role in the persistence of a negative external shock. To account for country-level corporate governance, I included a country's *rule of law* score in 1998, from Pistor et al. (2000). The *rule of law* score is based

on expert assessment reported by the Central European Economic Review, and is the closest to the ICRG *rule of law* rating used by La Porta et al. (1998). The *rule of law* score ranges from 0 to 10, with lower scores corresponding to countries with less tradition for law and order. The main proxy for firm-level corporate governance is a dummy variable that takes a value of 1 if there is a foreign blockholder (with at least 10% of capital), at the end of 1997. A more typical variable – managerial ownership – is not valid for our sample, because at the end of 1997, direct managerial ownership was rare. Table 2 presents the most common ownership types. A very common owner type among the largest shareholders is a domestic financial company that, in most cases, is a privatization or restitution fund. In many of these companies, managers' power is excessively high because there is no clear owner. Therefore, it is plausible to assume that the presence of a foreign blockholder means that there is somebody monitoring, or that the company is sufficiently governed, for a foreigner to invest substantial capital. This variable also captures the very few firms that had their shares cross-listed abroad (typically, through a global depository receipt (GDR) program). The sample of firms with ownership information (125 firms) is much lower than the initial sample, because ownership disclosure requirements were poorly enforced in 1997. Ownership information is collected from Worldscope (February 1999 disc) or firm's annual reports.

Summary statistics for the overall sample, and averages by country are shown in Table 3. The data show substantial variation in both short-term and long-term stock returns across countries. Average cumulative short-term returns range from –32% in Latvia to +4% in Slovakia, while long-term returns range from –76% in Latvia to +22% in Poland. On average, 13% of firms have direct sales exposure to the crisis country (exports to Russia), and 11% of firms compete with imports from Russia. All countries but Romania experienced on average positive sales growth in 1998; the median firm's sales growth was 7%. Median

⁴ Results are largely identical if I use the average daily trading volume scaled by the number of shares

liquidity is 0.88, i.e., there is non-zero trading volume in 88 out of 100 trading days.

Leverage, total loans to total assets, is rather low, ranging from 0.03 in Slovenia to 0.38 in Croatia. A foreign blockholder is present in about half of all firms (51%) with ownership information. The lowest *rule of law* score is in Romania (5.6), and the highest in Hungary and Poland (8.7). The median sample firm has a market capitalization of USD 19 mln.

Ownership information shows that the largest shareholder, on average, controls 42% of capital; the second largest, 15%; and the third largest, 10%. Deviations from one share - one vote are rather uncommon in the sample countries, therefore, for consistency I collected information on capital participation rather than the voting stake of the largest shareholders. Even in the few companies that have shares with differential voting rights (e.g., in Poland), the capital and voting stakes are almost identical. In this context, the ownership-to-control variables used in Mitton (2002), and Lemmon and Lins (2003), are not applicable to the sample of companies used in this paper.

3. Univariate and bivariate tests on stock returns

One of the main objectives of this paper is to determine which effects – firm-level or country-level – dominated in transmitting the Russian crisis to central and eastern European companies. In particular, I want to address the question of whether non-exposed firms performed better, no matter which country they operate in. To provide some preliminary evidence, Table 4 presents univariate and bivariate comparisons of cumulative stock returns for firms located in stronger vs. weaker corporate governance countries. I denote countries with above median *rule of law* scores as good governance countries, and the rest as bad governance countries. The labels “good country” and “bad country” are chosen purely for brevity reasons, and indeed mean country with stronger investor protection and country with

outstanding, as a measure for liquidity.

weaker investor protection, respectively. This classification puts the Czech Republic, Estonia, Hungary, Poland and Slovenia into the “good country” group, while Croatia, Latvia, Lithuania, Romania and Slovakia are in the “bad country” group. Simple univariate tests on equality of medians across the two groups show that short-term returns were significantly lower in good governance countries, while long-term and total returns were significantly lower in bad governance countries.

Further on, I divide the sample firms into several groups according to firm-specific characteristics and evaluate the cumulative stock returns in each of the four boxes: non-exposed firm + good country, non-exposed firm + bad country, exposed firm + good country, and exposed firm + bad country. Each of the seven pairs of firm characteristics in Table 4 starts with a group of non-exposed firms, i.e., the firms less susceptible to the Russian crisis. According to the theory, non-exposed firms: (1) do not compete with imports from Russia, (2) do not export to Russia, (3) have higher sales growth, (4) have lower leverage, (5) are smaller in size, (6) have less liquid stocks, and (7) have a foreign blockholder among the owners. Exports to Russia, imports from Russia, and foreign blockholder are all dummy variables; hence, the division into two groups is straightforward: either the variable is one or zero. The division into two groups, based on sales growth, leverage, firm size and liquidity is done by cutting the total sample into firms either above or below the median value. Following this classification, firms with sales growth above 7% are “high growth”; with leverage above 0.09 – “high leverage”; with log of sales above 10.92 – “big size”; and, with stock liquidity above 0.88 – “high liquidity”.

The univariate comparisons of cumulative short-term returns show that firms exporting to Russia, as well as larger and more liquid firms, experienced significantly sharper declines in stock prices during the one month period around the crisis. These results provide preliminary evidence that investors believe the *income effect* can affect firms with direct sales

to the crisis region. Moreover, there is evidence of the *forced portfolio recomposition* effect in larger and more liquid firms that experience capital outflow due to short-term liquidity constraints of investors. The comparisons of cumulative long-term returns show that firms that did not compete with imports from Russia, firms with a foreign blockholder, as well as faster growing, larger, more liquid and less levered firms overcame the negative effects of the crisis faster, i.e., the stock returns one year from the crisis were higher. These results provide preliminary evidence that all five channels had an impact on transmitting the crisis to the CEE companies. The last three columns of Table 4 show that there is significant firm level variation in total cumulative returns. Non-exposed firms have significantly higher total returns.

The bivariate comparisons of total returns show that non-exposed firms in good countries (upper left box in each two-by-two matrix) performed better than exposed firms in bad countries (lower right box). Most importantly, with two exceptions, exposed firms in good countries (lower left box) were hit less severely by the crisis than non-exposed firms in bad countries (upper right box), suggesting that the legal environment played an important role in overcoming the effects of the Russian virus. Only firms not competing with imports from Russia, and firms with higher sales growth in bad countries, experienced better stock performance than firms competing with imports from Russia and with lower sales growth in good countries.

Figures 1 through 7 show the performances of non-exposed firms - good country portfolios, and exposed firms - bad country portfolios, over a 13 month period from July 31, 1998 to August 31, 1999. The portfolios represent equal-weight US dollar returns (i.e., averages). The graphs show that non-exposed firms in good countries experienced a sharper decline initially, suggesting a more efficient information incorporation of negative news, and a faster recovery thereafter. The non-exposed firm - good country portfolios reached the

bottom around one month after the crisis, and then followed a slight upward trend. Meanwhile, the exposed firm - bad country portfolios continued falling and reached the bottom around six to eight months after the crisis, if they reached bottom at all. This result corroborates the view that informational efficiency is weaker in less developed financial markets (see e.g. BenZion et al. (2003) on evidence from the Israel stock market). Moreover, short-sales constraints in most of the sample countries (in 1998) could impede the adjustment of prices to negative information (Diamond and Verracchia, 1987), even more so for firms and countries with low stock liquidity. One year after the crisis, non-exposed firm - good country portfolios strongly outperformed the exposed firm - bad country portfolios.

Figures 8 through 17 show the more interesting comparison of non-exposed firm - bad country portfolio returns vs. exposed firm - good country portfolio returns. In the short-term, exposed firms in good countries fell considerably more than non-exposed firms in bad countries. Nevertheless, the difference between these two portfolios disappears around 6-7 months after the crisis. Exposed firm - good country portfolios are doing as good as, or better than, non-exposed firm - bad country portfolios when classification is done according to imports from Russia, sales growth, firm size, liquidity and foreign blockholder. Stock prices for firms with exports to Russia, and those with higher leverage in good countries, initially fell much more than in firms without sales exposure to Russia and with lower leverage, in bad countries, respectively, but the difference became insignificant around six months after the crisis. These results reinforce the importance of country factors, suggesting that strong firm-level characteristics were not able to outweigh the negative effects of weak country-level characteristics.

4. Regression analysis

Table 5 presents the relationship between stock performance and firm, industry and country characteristics. I use the country *random effects* specification for all regressions. In most of the cases, this specification is supported by the Breusch and Pagan (1980) Lagrange multiplier test, which rejects the null hypothesis that errors are independent within countries. An alternative specification is the country fixed effects model, but it is not feasible for this setup because there is no within-country variation in the *rule of law* score. The sign of all the other variables, however, remains intact if I use only the within-country variation in these variables. In the *random effects* specification, standard errors are adjusted to reflect the cross-correlation between within-country observations due to common country factors. This specification uses both within and between country variations in explanatory variables to estimate effects on stock returns. One could also use the industry random effects. The Breusch and Pagan (1980) Lagrange multiplier test, however, rejects the presence of industry random effects based on two-digit SIC codes.

In Table 5, I report six regressions on short-term, long-term and total returns. Regressions (1), (3) and (5) exclude the foreign ownership variable, while the other three regressions show the results of a reduced sample in which ownership data are available. Regressions (1) and (2) of Table 5 present the results on short-term returns. Results show that exports to Russia, company size and stock liquidity have negative and significant effects on short-term returns. The parameter estimates from regressions (1) imply that short-term stock returns of firms operating in industries with high sales to Russia were lower, by 21%, than short-term returns of firms in other industries. A one standard deviation increase in stock liquidity reduces the short-term returns by 12%, and a one standard deviation increase in firm size reduces the short-term returns by 6%. After controlling for firm-specific effects, the country-level corporate governance measure – the *Rule of Law* score – does not have a

significant effect on short-term returns. All the effect is captured by firm size and liquidity which, on average, are higher in countries with higher *rule of law* scores.

Regressions (3) and (4) of Table 5 present the results on long-term returns. Imports from Russia have a negative and significant coefficient in both specifications. The parameter estimates from regression (3) imply that long-term stock returns of firms competing with imports from Russia were lower, by 19%, than returns of other firms. Firm size has a positive and significant effect on long-term returns; a one standard deviation increase in firm size increases the long-term stock returns by 14%. There is some evidence of a *credit crunch* effect: firms with higher leverage had significantly lower long-term stock returns. As expected, sales growth had a positive effect on long-term returns. Regression (4) shows that the presence of a foreign blockholder, i.e., stronger internal corporate governance, increased the long-term stock returns by 11%. The *rule of law* score has a positive effect on long-term returns, suggesting that firms operating in countries with better corporate governance experienced a faster recovery due to stronger investor protection (consistent with Johnson et al., 2000). From regression (4), we can see that after controlling for firm-specific characteristics, a country's *rule of law* score still has substantial explanatory power in long-term stock returns.

In the last two columns of Table 5, I report regressions on cumulative total returns from the end of July 1998 to the end of August 1999. Both trade relation variables (imports from Russia and exports to Russia) have negative coefficients. Parameter estimates from regressions (5) and (6) imply that firms operating in industries that compete with products from Russia had stock returns that were lower, by around 20%, than stock returns in other firms. Firm size played a positive role in overcoming the negative effects of the crisis. Firms with higher leverage experienced lower stock returns. The significant negative effect of liquidity on stock returns can be interpreted as evidence of the *forced portfolio recomposition*

effect. Firms with higher liquidity presumably have more financial investors (as compared to strategic investors) who may easily liquidate their position once faced with a liquidity constraint. The presence of a foreign blockholder had a positive effect on stock performance. Finally, the *rule of law* score had a positive effect on total returns, even after controlling for firm-specific characteristics.

These results are consistent with predictions that trade linkages, a decrease in international financial liquidity, and the level of investor protection were important mechanisms transmitting the Russian crisis to companies in transition economies. To address the interesting question of the relative importance of firm-effects vs. country-effects, I recalculate the previous regressions by adding an interaction with a dummy variable, equal to 1, if the firm is located in a good corporate governance country. The classification into good vs. bad countries is the same as in Section 3.

In Table 6, regressions (1) and (2) report the tests on short-term returns, regressions (3) and (4) on long-term returns, and regressions (5) and (6) on total returns. The first regression in each pair includes only the variables that were significant in regressions reported in Table 5, and their interaction with a Good Governance dummy; the second regression includes all the variables. Regressions (1) and (2) show that the significance of the variables on short-term returns depends on both good and bad governance countries; i.e. there is not much country-level variation. The negative effect of exports to Russia is lower in good governance countries, but the difference is not significant. The negative effect of liquidity is significantly lower in good governance countries, but liquidity still has a significant *negative* effect on stock returns in good governance countries. Size effect is even more negative in good countries than in bad countries. The increase in explanatory power (R^2), by adding the interaction variables, is very marginal – from 38.34% in regression (1) of Table 5, to 40.38%

in regression (2) of Table 6. Overall, the results show that firm-specific variables are significant in explaining short-term returns in both good and bad governance countries.

Regressions (3) and (4) of Table 6 show that the effect of the explanatory variables on long-term returns differs between good governance and bad governance countries. In particular, the negative effect of imports from Russia, the positive effect of sales growth and the positive effect of the presence of a foreign blockholder is more pronounced in bad governance countries. Meanwhile, the negative leverage effect is more evident in good governance countries. There is a more notable increase in explanatory power (R^2) when adding the interaction variables – from 31.46% in regression (4) of Table 5, to 44.47% in regression (4) of Table 6. In sum, the firm-specific effects seem to be more important in bad governance countries.

Regressions (5) and (6) show the results on total returns. We can again observe substantial variations between good and bad governance countries. The previously observed negative effect, from both stock liquidity and competition with imports from Russia, on total returns is driven by firms in bad governance countries. Overall, these results suggest that a good country label reduced the severity of the Russian virus across all firms in these countries, while firm-specific characteristics played a more significant role in countries with weaker corporate governance. This result is consistent with Klapper and Love (2003) and Durnev and Kim (2004), who show that firm-level corporate governance provisions matter more for firm performance in countries with weak legal environments.

5. Robustness check

The question arises as to what was the role of the country's macroeconomic situation at the time of the Russian crisis. To address this question, I collected macroeconomic variables in the sample countries for 1997. The main variables used in previous studies (e.g.

Johnson et al., 2000) were size of the stock market, current account balance to gross domestic product (GDP), external debt to GDP, external debt to exports, foreign reserves to imports per month, growth rate of broad money, and central budget balance to GDP. The values of these variables in the sample countries are presented in Table 3.

Overall, the macroeconomic variables have a very marginal effect on stock returns. In regression analysis, most of the variables exhibit the expected signs, but only a few of them are significant. Most importantly, the inclusion of macroeconomic variables – either one-by-one or an aggregate index – does not alter any of the results discussed in the previous sections of this paper. The classification into good vs. bad countries, based on the macroeconomic situation in the countries before the Russian crisis, is very close to the classification based on the corporate governance level. The only difference is that Romania and Estonia exchange places, i.e. Romania moves to the good country category and Estonia, to the bad country category.

6. Conclusions

Using data from 417 firms in transition economies, I find evidence that stock performance during and after the Russian crisis varied substantially across firms and countries. The data show that firms producing in industries that compete with major imports from Russia (*product competitiveness effect*), firms producing in industries with major exports to Russia (*income effect*), firms with greater liquidity (*forced portfolio recombination effect*), firms that are highly levered (*credit crunch effect*), firms without a foreign blockholder, and firms operating in countries with a poor record of investor protection, had significantly lower stock returns one year after the crisis. I also find a strong short-term *forced portfolio recombination effect*: firms with presumably higher institutional investor

presence, i.e., bigger and more liquid firms, exhibited sharp short-term decreases in stock prices.

The paper provides additional evidence on the relationship between corporate governance and market efficiency. The stock prices in countries with higher *rule of law* scores incorporated the negative news about the Russian crisis much faster than stock prices in countries with lower *rule of law* scores. The data show that stock prices in good countries reached the bottom around one month after black Monday (August 17), while stock prices in bad countries continued to deteriorate for an additional five to six months.

Finally, the paper offers interesting evidence for the importance of country vs. firm effects in overcoming a crisis. I find that both firm and country level characteristics do matter; however, firm-specific characteristics play a bigger role for firms operating in countries with weak legal investor protection. There is a clear advantage of a “good country” label. During the crisis, both exposed and non-exposed firms operating in good countries tended to perform at least as good as, or better than, all firms in bad countries. Maybe that is why it took so long to realize that there are also *Enrons* in “good countries”.

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Table 1.
Major exports and imports with Russia

The table reports two largest exports to Russia and imports from Russia categories in each country in 1997. The fraction of total shows the percentage of total exports/ imports in a particular country that each product group takes. Exports and imports are classified according to standard international trade classification HS codes. The respective SIC two-digit or three-digit codes are given in parentheses.

Country	Exports	Exports	Imports	Imports
	HS code (SIC code)	Fraction of total	HS code (SIC code)	Fraction of total
Croatia	XVII Vehicles, aircraft, vessels and associated transport equipment (SIC2: 37)	14.5%	V Mineral products (SIC2: 29)	85.1%
	VI Products of the chemical or allied industries (SIC2: 28)	13.1%	XV Base metals and articles of base metal (SIC2: 33-34)	7.4%
Czech Republic	XVI Machinery and mechanical appliances; electrical equipment; parts thereof (SIC2: 35-36)	22.4%	V Mineral products (SIC2: 29)	88.3%
	XVII Vehicles, aircraft, vessels and associated transport equipment (SIC2: 37)	18.3%	XVI Machinery and mechanical appliances; electrical equipment; parts thereof (SIC2: 35-36)	5.4%
Estonia	XVII Vehicles, aircraft, vessels and associated transport equipment (SIC2: 37)	81.3%	V Mineral products (SIC2: 29)	45.6%
	XVI Machinery and mechanical appliances; electrical equipment; parts thereof (SIC2: 35-36)	5.5%	XV Base metals and articles of base metal (SIC2: 33-34)	11.1%
Hungary	XVII Vehicles, aircraft, vessels and associated transport equipment (SIC2: 37)	24.8%	V Mineral products (SIC2: 29)	72.1
	VI Products of the chemical or allied industries (SIC2: 28)	20.3%	XVI Machinery and mechanical appliances; electrical equipment; parts thereof (SIC2: 35-36)	4.2%
Lithuania	V Mineral products (SIC2: 29)	38.8%	V Mineral products (SIC2: 29)	62.0%
	XVII Vehicles, aircraft, vessels and associated transport equipment (SIC2: 37)	13.6%	XVI Machinery and mechanical appliances; electrical equipment; parts thereof (SIC2: 35-36)	10.2%
Latvia	XVII Vehicles, aircraft, vessels and associated transport equipment (SIC2: 37)	28.5%	V Mineral products (SIC2: 29)	48.1%
	IV Prepared foodstuffs; beverages, spirits and vinegar; tobacco (SIC3: 203, 209)	19.3%	VI Products of the chemical or allied industries (SIC2: 28)	15.9%
Poland	IV Prepared foodstuffs; beverages, spirits and vinegar; tobacco (SIC3: 203, 209)	20.7%	V Mineral products (SIC2: 29)	83.1%
	VI Products of the chemical or allied industries (SIC2: 28)	17.9%	XV Base metals and articles of base metal (SIC2: 33-34)	3.0%
Romania	I Live animals; animal products (SIC2: 201)	44.5%	V Mineral products (SIC2: 29)	83.4%
	XVI Machinery and mechanical appliances; electrical equipment; parts thereof (SIC2: 35-36)	18.3%	XV Base metals and articles of base metal (SIC2: 33-34)	7.3%
Slovakia	X Pulp of wood or of other fibrous cellulosic material; waste and scrap of paper (SIC2: 26-27)	17.4%	V Mineral products (SIC2: 29)	79.8%
	XV Base metals and articles of base metal (SIC2: 33-34)	17.3%	XV Base metals and articles of base metal (SIC2: 33-34)	6.6%
Slovenia	VI Products of the chemical or allied industries (SIC2: 28)	37.2%	V Mineral products (SIC2: 29)	77.4%
	XVI Machinery and mechanical appliances; electrical equipment; parts thereof (SIC2: 35-36)	32.7%	XV Base metals and articles of base metal (SIC2: 33-34)	5.1%

Table 2.
Ownership type

The table reports the number and percentage of total firms with each ownership type at the end of 1997. Ownership information comes from Worldscope (February 1999 disc) or company's annual report. Owners are ranked according to their share in firm's equity capital.

Ownership type	1st owner	2nd owner	3rd owner	4th owner	5th owner
Domestic private	3	3	5		1
Domestic company	27	17	14	7	3
Domestic financial (incl. privatization funds)	44	21	12	13	5
State	11	7	3	2	1
Employees and management	2	3	2	2	
Other (associations)			1	1	
Offshore	3	4			
Foreign private	1			1	
Foreign company	19	11	4	1	1
Foreign financial	15	30	15	10	7
Total	125	96	56	37	18
<i>Percentage of total:</i>					
Domestic private	2.4%	3.1%	8.9%		5.6%
Domestic company	21.6%	17.7%	25.0%	18.9%	16.7%
Domestic financial (incl. privatization funds)	35.2%	21.9%	21.4%	35.1%	27.8%
State	8.8%	7.3%	5.4%	5.4%	5.6%
Employees and management	1.6%	3.1%	3.6%	5.4%	
Other (associations)			1.8%	2.7%	
Offshore	2.4%	4.2%			
Foreign private	0.8%			2.7%	
Foreign company	15.2%	11.5%	7.1%	2.7%	5.6%
Foreign financial	12.0%	31.3%	26.8%	27.0%	38.9%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table 3.
Summary statistics by country

The table shows summary statistics for 417 firms in central and eastern Europe. Short-term return is local currency log return from July 31 to August 31, 1998. Long-term return is from August 31, 1998 to August 31, 1999. Total return is the sum of short-term and long-term return. Imports from Russia is equal to 1 if the firm produces products that are among the two largest import categories from Russia in a given country in 1997 (see Table 1), and 0 otherwise. Exports to Russia is equal to 1 if the firm produces products that are among the two largest export categories to Russia in a given country in 1997 (see Table 1), and 0 otherwise. Leverage is total debt to total assets at the end of 1997. Firm size is the natural logarithm of firm's sales denominated in thousands of USD in 1997. Liquidity is the ratio of number of days with non-zero trading volume divided by total number of trading days in the first 6 months of 1998. Foreign blockholder is equal to 1 if there is a foreign shareholder holding at least 10% of capital, and 0 otherwise. Rule of law is a score that ranges from 0 to 10, with lower scores corresponding to less tradition for law and order (reported for year 1998 in Pistor et al. (2000)). Market size is the natural logarithm of country's stock market capitalization (in millions USD) at the end of 1997.

	ALL FIRMS				AVERAGE BY COUNTRY									
	Mean	Median	Standard deviation	Obs.	Croatia	Czech Republic	Estonia	Hungary	Lithuania	Latvia	Poland	Romania	Slovakia	Slovenia
<i>Dependent variables:</i>														
Short-term return	-0.20	-0.20	0.24	410	-0.29	-0.15	-0.13	-0.27	0.00	-0.32	-0.30	-0.26	0.04	-0.02
Long-term return	0.00	0.05	0.53	414	-0.14	-0.05	-0.34	-0.04	-0.31	-0.76	0.22	0.07	-0.39	0.09
Total return	-0.21	-0.17	0.53	407	-0.43	-0.21	-0.47	-0.32	-0.32	-1.08	-0.08	-0.21	-0.33	0.07
<i>Control variables:</i>														
Imports from Russia	0.11	0.00	0.32	392	0.00	0.06	0.00	0.03	0.16	0.22	0.11	0.22	0.36	0.05
Exports to Russia	0.13	0.00	0.34	392	0.67	0.06	0.00	0.23	0.12	0.33	0.11	0.12	0.29	0.26
Sales growth in 1998	0.11	0.07	0.36	293	0.37	0.07	0.12	0.24	0.20	0.00	0.23	-0.16	0.06	0.12
Leverage	0.14	0.09	0.15	297	0.38	0.20	0.18	0.12	0.20	0.16	0.08	0.11	0.30	0.03
Firm size	10.99	10.92	1.44	336	12.08	11.86	10.04	11.28	10.09	10.13	11.11	9.98	12.01	10.69
Liquidity	0.71	0.88	0.31	317	0.74	0.37	0.86	0.71	0.48	0.87	0.87	0.88	.	0.15
Foreign blockholder	0.51	1.00	0.50	125	.	0.40	0.67	0.59	1.00	0.25	0.66	.	0.60	0.00
Rule of law	7.95	8.40	1.06	417	7.00	8.30	8.50	8.70	7.20	7.50	8.70	5.60	6.40	8.40
<i>Other:</i>														
Firm market value (mn USD)	128.31	19.00	475.71	360	605.0	167.7	33.9	370.0	61.2	20.5	116.2	12.6	38.5	43.5
Market size	8.61	9.40	1.20	417	8.35	9.46	7.04	9.61	7.68	5.82	9.40	6.45	8.57	7.39
Current account balance/ GDP, percent	-5.50	-5.96	3.05	417	-14.05	-6.84	-12.17	-1.50	-10.19	-6.13	-3.86	-5.96	-9.30	0.28
External debt/ GDP	0.36	0.34	0.10	417	0.40	0.44	0.49	0.54	0.34	0.49	0.27	0.27	0.47	0.21
External debt/ Exports	0.88	0.93	0.18	417	0.97	0.77	0.63	0.97	0.62	0.96	1.06	0.93	0.83	0.48
Foreign reserves/ Imports per month	3.90	3.68	1.04	417	2.53	3.46	2.07	3.68	1.96	2.88	5.07	4.37	3.03	3.65
Growth rate of broad money, percent	32.08	29.07	29.62	417	38.41	1.66	37.79	19.72	34.07	36.99	29.07	104.99	8.69	23.31
Central budget balance/ GDP, percent	-2.52	-3.10	1.40	417	-1.30	-1.40	1.80	-4.80	-1.80	0.10	-3.10	-3.60	-2.60	-1.20

Table 4.
Univariate and bivariate tests on cumulative stock returns

The table reports median returns subdivided into categories according to exposed/ non-exposed firm-level characteristics and good/ bad country level characteristics. Short-term return is local currency log return from July 31 to August 31, 1998. Long-term return is from August 31, 1998 to August 31, 1999. Total return is the sum of short-term and long-term return. "Good countries" are the Czech Republic, Estonia, Hungary, Poland, and Slovenia, i.e., the countries with *rule of law* above median. "Bad countries" are Croatia, Lithuania, Latvia, Romania, and Slovakia, i.e., the countries with *rule of law* below median. *Rule of law* is a score that ranges from 0 to 10, with lower scores corresponding to less tradition for law and order (reported for year 1998 in Pistor et al. (2000)). Non-exposed firm category is reported in the first row of each pair of firm-level characteristics, and exposed firm category is reported in the second row. *No Imports* includes firms that do not produce products that are among the two largest import categories from Russia in a given country in 1997 (see Table 1). *No Exports* includes firms that do not produce products that are among the two largest export categories to Russia in a given country in 1997 (see Table 1). *High sales growth* includes firms that had above median (7%) sales growth in 1998. *Low leverage* includes firms that had below median (0.09) total debt to total assets at the end of 1997. *Small size* includes firms with below median (10.92) logarithm of firm's sales denominated in thousands of USD in 1997. *Low liquidity* includes firms with below median (0.88) liquidity: the ratio of number of days with non-zero trading volume divided by total number of trading days in the first 6 months of 1998. *Foreign blockholder* includes firms with a foreign shareholder holding at least 10% of capital. The third column in each return group reports the medians by non-exposed/ exposed firm category. Wilcoxon z-statistics test for differences in medians between non-exposed and exposed firms is performed. The significance level is shown next to the highest value. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

Medians	Short-term return			Long-term return			Total return		
	Good countries	Bad countries	Non-exposed Exposed firms	Good countries	Bad countries	Non-exposed Exposed firms	Good countries	Bad countries	Non-exposed Exposed firms
No Imports	-0.219	-0.108	-0.196	0.127	-0.127	0.072**	-0.133	-0.277	-0.162**
Imports	-0.295	-0.130	-0.248	-0.007	-0.357	-0.071	-0.351	-0.449	-0.397
No Exports	-0.217	-0.114	-0.194**	0.127	-0.123	0.059	-0.122	-0.288	-0.158**
Exports	-0.313	-0.132	-0.298	0.111	-0.417	0.033	-0.183	-0.276	-0.216
High sales growth	-0.230	-0.022	-0.214	0.210	-0.039	0.164***	-0.064	-0.082	-0.072***
Low sales growth	-0.214	-0.154	-0.196	0.052	-0.118	-0.004	-0.223	-0.283	-0.256
Low Leverage	-0.203	-0.250	-0.205	0.201	-0.173	0.154***	-0.042	-0.329	-0.133***
High Leverage	-0.223	-0.048	-0.192	0.064	-0.119	0.000	-0.225	-0.205	-0.223
Small size	-0.172	-0.131	-0.166***	0.086	-0.119	-0.002	-0.139	-0.277	-0.208
Big size	-0.251	-0.107	-0.237	0.182	-0.234	0.142***	-0.133	-0.288	-0.134
Low Liquidity	-0.150	0.000	-0.105***	0.051	-0.174	-0.005	-0.147	-0.261	-0.182
High Liquidity	-0.299	-0.333	-0.307	0.217	-0.118	0.158***	-0.115	-0.388	-0.157
Foreign blockholder	-0.233	0.000	-0.225	0.163	-0.058	0.153**	-0.006	-0.260	-0.072***
No-Foreign blockholder	-0.211	-0.342	-0.220	0.053	-0.524	0.042	-0.223	-0.774	-0.288
Good vs. Bad country	-0.224	-0.120***		0.118***	-0.169		-0.152***	-0.283	

Table 5.
Random-effects regressions on stock returns during and after the crisis

The table presents results for random-effects regressions with country random effects. The dependent variables are short-term, long-term, and total returns. Short-term return is local currency log return from July 31 to August 31, 1998; long-term return – from August 31, 1998 to August 31, 1999, and total-return – from July 31, 1998 to August 31, 1999. Imports from Russia is equal to 1 if the firm produces products that are among the two largest import categories from Russia in a given country in 1997 (see Table 1), and 0 otherwise. Exports to Russia is equal to 1 if the firm produces products that are among the two largest export categories to Russia in a given country in 1997 (see Table 1), and 0 otherwise. Firm size is the natural logarithm of firm's sales denominated in thousands of USD in 1997. Liquidity is the ratio of number of days with non-zero trading volume divided by total number of trading days in the first 6 months of 1998. Leverage is total debt to total assets at the end of 1997. Foreign blockholder is equal to 1 if there is a foreign shareholder holding at least 10% of capital, and 0 otherwise. Rule of law is a score that ranges from 0 to 10, with lower scores corresponding to less tradition for law and order (reported for year 1998 in Pistor et al. (2000)). Standard errors are shown in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

Dependent variable:	Short-returns		Long-returns		Total-returns	
	(1)	(2)	(3)	(4)	(5)	(6)
Imports from Russia	-0.003 (0.047)	-0.069 (0.059)	-0.191* (0.108)	-0.331** (0.161)	-0.194* (0.113)	-0.232 (0.164)
Exports to Russia	-0.206*** (0.051)	-0.281*** (0.066)	-0.193 (0.217)	0.045 (0.181)	-0.012 (0.122)	-0.236 (0.184)
Firm size	-0.044*** (0.011)	-0.023 (0.014)	0.097*** (0.025)	0.110*** (0.039)	0.053** (0.026)	0.087** (0.039)
Liquidity	-0.392*** (0.047)	-0.297*** (0.061)	0.114 (0.109)	-0.075 (0.167)	-0.278** (0.113)	-0.373** (0.169)
Sales growth in 1998	-0.043 (0.040)	0.069 (0.086)	0.159* (0.092)	0.194 (0.236)	0.116 (0.095)	0.263 (0.239)
Leverage	0.017 (0.108)	0.020 (0.130)	-0.689*** (0.250)	-0.494 (0.358)	-0.672*** (0.260)	-0.474 (0.363)
Foreign blockholder		0.024 (0.040)		0.112* (0.064)		0.136 (0.111)
Rule of Law	0.003 (0.014)	0.019 (0.049)	0.036 (0.033)	0.259* (0.135)	0.033 (0.034)	0.279** (0.137)
Constant	0.523*** (0.129)	0.043 (0.392)	-0.733** (0.297)	-3.282*** (1.080)	-0.210 (0.310)	-3.239*** (1.094)
Overall R ²	0.383	0.493	0.141	0.315	0.093	0.317
Number of observations	206	78	206	78	206	78

Table 6.
Interactions with country-level corporate governance provisions

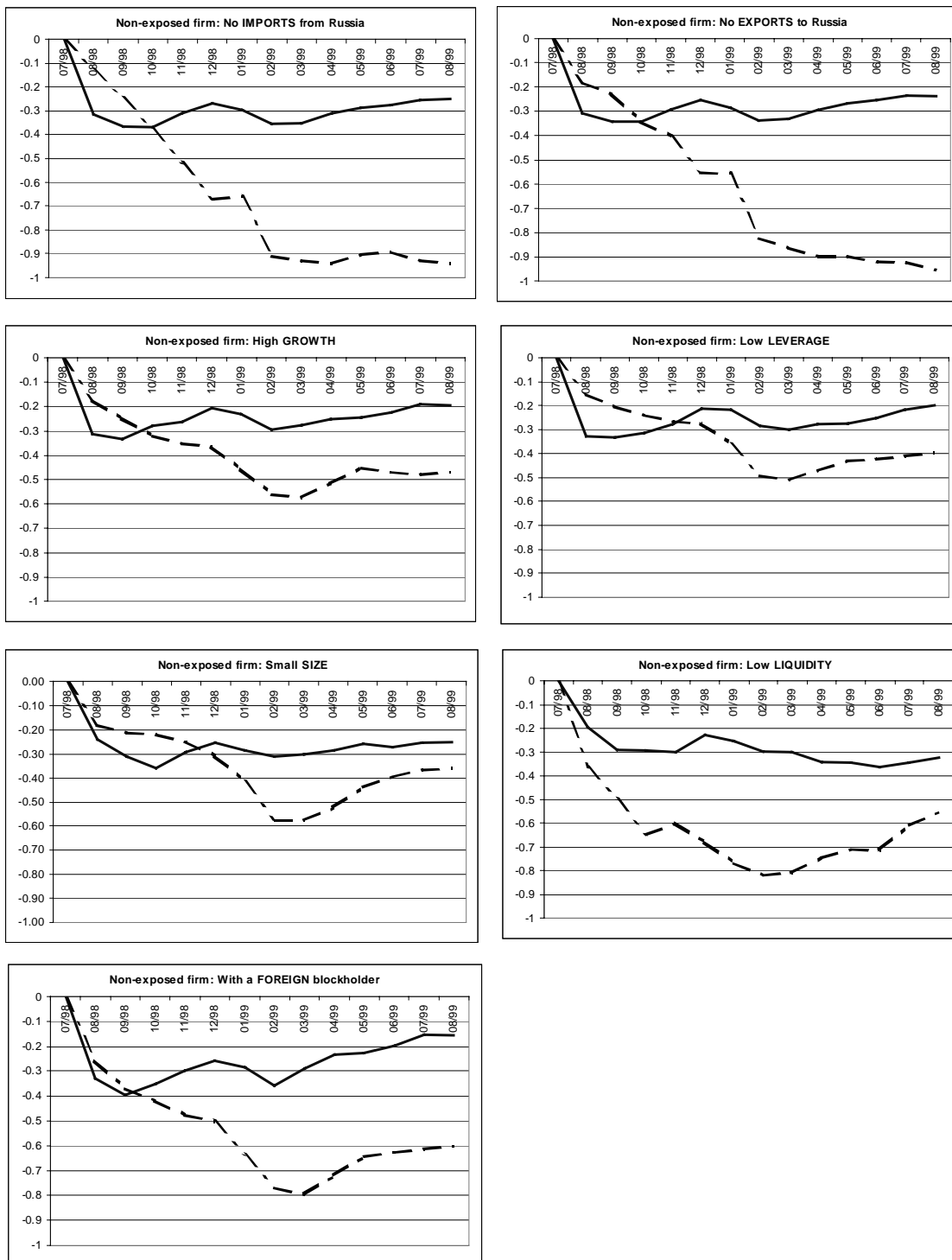
The table presents results for random-effect regressions with country random effects. The dependent variables are short-term return (regressions 1 and 2), long-term return (regressions 3 and 4), and total return (regressions 5 and 6). Short-term return is local currency log return from July 31 to August 31, 1998. Long-term return is from August 31, 1998 to August 31, 1999. Total return is the sum of short-term and long-term return. Imports from Russia is equal to 1 if the firm produces products that are among the two largest import categories from Russia in a given country in 1997 (see Table 1), and 0 otherwise. Exports to Russia is equal to 1 if the firm produces products that are among the two largest export categories to Russia in a given country in 1997 (see Table 1), and 0 otherwise. Leverage is total debt to total assets at the end of 1997. Firm size is the natural logarithm of firm's sales denominated in thousands of USD in 1997. Liquidity is the ratio of number of days with non-zero trading volume divided by total number of trading days in the first 6 months of 1998. Foreign blockholder is equal to 1 if there is a foreign shareholder holding at least 10% of capital, and 0 otherwise. GOOD_GOV is equal to one if the country's rule of law is above the median (see Table 4). Rule of law is a score that ranges from 0 to 10, with lower scores corresponding to less tradition for law and order (reported for year 1998 in Pistor et al. (2000)). Standard errors are shown in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

	Short-returns		Long-returns		Total returns	
	(1)	(2)	(3)	(4)	(5)	(6)
Imports from Russia		-0.008	-0.648**	-0.930**	-0.318**	-0.305**
		(0.047)	(0.312)	(0.383)	(0.141)	(0.145)
Imports from Russia * GOOD_GOV			0.243	0.866**	0.341	0.364
			(0.365)	(0.433)	(0.221)	(0.223)
Exports to Russia	-0.219***	-0.239***		0.076		0.001
	(0.069)	(0.079)		(0.173)		(0.120)
Exports to Russia * GOOD_GOV	0.043	0.051				
	(0.089)	(0.103)				
Firm size	-0.027**	-0.029**	0.107	0.039	0.005	0.006
	(0.012)	(0.014)	(0.071)	(0.081)	(0.032)	(0.034)
Firm size * GOOD_GOV	-0.016**	-0.017**	-0.005	0.043	0.033	0.031
	(0.007)	(0.008)	(0.045)	(0.056)	(0.021)	(0.022)
Liquidity	-0.546***	-0.606***		-0.087	-0.656***	-0.592**
	(0.098)	(0.106)		(0.188)	(0.236)	(0.251)
Liquidity * GOOD_GOV	0.219*	0.279**			0.389	0.400
	(0.114)	(0.125)			(0.276)	(0.294)
Sales growth in 1998		-0.054	1.338	0.981		0.125
		(0.040)	(1.177)	(1.808)		(0.094)
Sales growth in 1998 * GOOD_GOV			-1.213	-0.879		
			(1.199)	(1.816)		
Leverage		0.018	1.454	0.317	-0.439	-0.577
		(0.108)	(1.340)	(1.292)	(0.450)	(0.474)
Leverage * GOOD_GOV			-1.947	-0.888	0.040	0.027
			(1.385)	(1.336)	(0.539)	(0.566)
Foreign blockholder			0.373*	0.769*		
			(0.218)	(0.426)		
Foreign blockholder * GOOD_GOV			-0.198	-0.740		
			(0.339)	(0.542)		
Rule of Law	-0.006	-0.017	0.421	0.210	0.046	0.025
	(0.029)	(0.034)	(0.260)	(0.357)	(0.031)	(0.052)
Constant	0.548**	0.676**	-4.697**	-2.478	-1.907***	-1.937***
	(0.256)	(0.301)	(2.388)	(3.139)	(0.654)	(0.727)
Overall R ²	0.390	0.404	0.289	0.445	0.156	0.153
Number of observations	248	206	105	78	222	206

Figures 1-7.

Non-exposed firms in Good countries vs. Exposed firms in Bad countries

The solid line represents the average cumulative returns (in US dollars) for a portfolio of non-exposed firms in good governance countries. Non-exposed firm definition is given in the title of each graph. The interrupted line represents the average returns for a portfolio of exposed firms in bad governance countries. “Good countries” are the Czech Republic, Estonia, Hungary, Poland, and Slovenia, i.e., the countries with *rule of law* above median. “Bad countries” are Croatia, Lithuania, Latvia, Romania and Slovakia, i.e., the countries with *rule of law* below median. *Rule of law* is a score that ranges from 0 to 10, with lower scores corresponding to less tradition for law and order (reported for year 1998 in Pistor et al. (2000)). Detailed description of firm-level characteristics can be found in the explanations to Table 4.



Figures 8-14.

Non-exposed firms in Bad countries vs. Exposed firms in Good countries

The solid line represents the average cumulative returns (in US dollars) for a portfolio of non-exposed firms in bad governance countries. Non-exposed firm definition is given in the title of each graph. The interrupted line represents the average returns for a portfolio of exposed firms in good governance countries. “Good countries” are the Czech Republic, Estonia, Hungary, Poland, and Slovenia, i.e., the countries with *rule of law* above median. “Bad countries” are Croatia, Lithuania, Latvia, Romania and Slovakia, i.e., the countries with *rule of law* below median. *Rule of law* is a score that ranges from 0 to 10, with lower scores corresponding to less tradition for law and order (reported for year 1998 in Pistor et al. (2000)). Detailed description of firm-level characteristics can be found in the explanations to Table 4.

