Do political shocks threaten sovereign spreads? Evidence from Emerging Markets.

April 10, 2017

Abstract

The aim of this paper is to incorporate a new feature in the source of business cycles in Emerging Markets: the political risk. To do that, we extend the empirical approach employed in [Uribe and Yue, 2006] using a Structural VAR approach. The main findings of the paper are the following: (1) the main sources of fluctuation of the sovereign spreads are stock market volatility and political risk, for the short-run, and business cycles fluctuations and US interest rates, for the long-run; (2) uncertainty (stock market volatility) and sovereign spread shocks are the main causes of fluctuations in the business cycles for developing economies; (3) political risk is affected by business cycles, sovereign spreads and uncertainty, as expected; (4) as found in previous research, uncertainty in the financial markets affects US and Emerging economies in different ways.

1 Introduction

Country risk is an important issue for investors’ decision making, but it is also important as a matter of public policy because it affects government debt’s borrowing costs and it is closely related to the monetary policy instrument. It is important to decompose what are the sources of country risk to understand how this affects the risk premium. Especially for Emerging Markets. Investors are worried about which are the risks they are bearing when investing in a specific country. One important issue is how government’s actions could affect their returns, in other words, the political risk. For the best of our knowledge this is the first paper to address the issue of how political shocks affect the government bonds and business cycles in Emerging Markets using popular political risk measure from the finance literature.

There is a growing literature nowadays devoted to explain the main sources of the sovereign spreads in Emerging Markets. Recent developments show
that a big part of the these spreads is due to political risk. Political risk is understood in this literature as risks of political violence, transfer, and expropriation. The aim of this paper is to study how political risk shocks are transmitted to the sovereign spreads and its effect on the business cycles. Many authors point the role of the economic factors as drivers of the sovereign spreads. [Min, 1998] finds that a set of macroeconomic variables - such as domestic inflation, terms of trade, real exchange rates and net foreign assets - matter for the credit risk spread. [Rowland and T., 2004] find that these macroeconomic variables also influence creditworthiness. [Uribe and Yue, 2006] use a structural VAR to disentangle the sovereign spreads, the world interest rate, and these macroeconomic fundamentals mentioned before. They find that changes in the spread and in the US interest rate for Emerging Markets explain the major part of the business cycles. These articles shed some light on the fact that the sovereign is important not just for investor decision making, but as a policy variable that is really important explaining business cycles in Emerging markets. Trying to evaluate how political risk affects the country risk spread, [Baldacci et al., 2011] expands the set of variables to investigate the determinants of the sovereign spreads using political risk measures and fiscal policy variables. The article concludes that political distress is an important part of the spread, especially in financial turmoil. Meanwhile, the fiscal policy is just relevant when the country faces a high initial debt. [Bekaert et al., 2014] explain the sovereign spread by global and country specific economic factors, bond liquidity factors and political risks. Using data from the International Country Risk Guide (ICRG) the authors find that the political risk represents one third of the whole spread. More important, they find that this measure of political risk has predictive power over political events, predicting the political risk claims and political risk news. They also find that this measure does not double count the systemic risk. [Duyvesteyn et al., 2016] raises the question whether the prices of the bond adjust right away or slowly, regarding the political risk. Using the political risk rating from the ICRG, the authors propose a portfolio based on the past improvement of this measure, and find evidence that this portfolio has higher expected return one year ahead, when compared with countries where the political environment has deteriorated before. This premium is not explained by economic and financial risk factors. Besides the internal political risk, we can expect that the global political risk would affect the sovereign spread. Using data from Emerging Markets, Euro area and US market, [Huang et al., 2015] suggest that the international political risk is an important determinant of the bond pricing. This study finds evidence that a international distress has a positive effect for most of countries and maturities but there is no effect over the the US
bonds. The authors suggest that this is an indication of the "flying to quality" effect. Besides the global political uncertainty, there is evidence that the quality of the political stability and legal investor protection regimes can mitigate the negative effects of the international political risk.

Using a news based approach, [Kaminsky and Schmukler, 1999] evaluate which type of news affects financial markets. Using data from the Asian crisis (1997-1998), the authors indicate that political news have a significant effect. For instance, bad political news had a negative 5 percentage points effect over these prices during this period.

The change of the minister of finance is the political risk considered by [Moser, 2007] to evaluate the impact of this kind of risk in Latin America. The spreads rise even 40 days before and it takes more than 40 days after to stabilize after the change. The author argues that this is due to a possible change in the willingness to pay of the country. The goal of my research is to employ a new method that identifies the political shocks without any news based approach. Using data from the ICRG as in [Bekaert et al., 2014] and a structural VAR approach, I want to identify how the political risk shocks affect the sovereign spread. The approach in this paper is related to [Uribe and Yue, 2006] and [Bekaert et al., 2013]. Using this new approach I find evidence that political risk might not be as important as previous research in this area proposed.

The main findings of the paper are the following: (1) the main sources of fluctuation of the sovereign spreads are stock market volatility and political risk, for the short-run, and business cycles fluctuations and US interest rates, for the long-run; (2) uncertainty (stock market volatility) and sovereign spread shocks are the main causes of fluctuations in the business cycles for developing economies; (3) political risk is affected by business cycles, sovereign spreads and uncertainty, as expected; (4) as found in previous research, uncertainty in the financial markets affects US and Emerging economies in different ways.

The remainder of the paper is organized as follows. In section 2, we present the source of the data and the descriptions of the variables employed here. Section 3 presents our empirical approach, first with a local projection approach and then with a Structural VAR proposed here. Section 4 concludes the paper.

2 Data

The sample consists on monthly data on Argentina, Belarus, Brazil Bulgaria, Chile, China, Colombia, Côte d’Ivoire, Croatia, Dominican Republic, Ecuador, Egypt, El Salvador, Gabon, Ghana Greece, Hungary, Indonesia, Iraq, Jamaica, Jordan, Kazakhstan, Korea, South, Lebanon, Lithuania,
Malaysia, Mexico Morocco, Nigeria, Pakistan, Panama, Peru, Philippines, Poland, Russia, Senegal, South Africa, Sri Lanka, Thailand Trinidad & Tobago, Tunisia, Turkey, Ukraine, Uruguay, Venezuela and Vietnam. Data availability, however, varies across countries. The longest series range from January 1998 to January 2017. The data from US matches with our longest series for the emerging markets.

In Table 1 we present the summary statistics and description for all the variables that we use in this article. The VIX and the Effective FED funds rate come from Federal Reserve Economic Data website. The Industrial Productions and the EMBI+ stripped Spread data come from the Global Economic Monitor, the World Bank data website. And the ICRG’s Political risk rating is extracted from the PRS Group’s website. In the next subsection we describe in more details the political risk measure used in the rest of the paper.

### Table 1: Summary Statistics

<table>
<thead>
<tr>
<th>Description</th>
<th>Variable</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log difference of CBOE Volatility Index</td>
<td>VIX</td>
<td>-0.287</td>
<td>16.043</td>
</tr>
<tr>
<td>Log of Effective FED Funds rate</td>
<td>MP*</td>
<td>-26.750</td>
<td>166.872</td>
</tr>
<tr>
<td>Log difference of US Industrial Production</td>
<td>BC*</td>
<td>0.042</td>
<td>0.871</td>
</tr>
<tr>
<td>Log difference of Emerging Markets’ EMBI+ Spread</td>
<td>SS</td>
<td>-1.273</td>
<td>21.420</td>
</tr>
<tr>
<td>Log difference of Emerging Markets’ Industrial Production</td>
<td>BC</td>
<td>0.283</td>
<td>4.043</td>
</tr>
<tr>
<td>100 minus the ICRG’s Political risk ratings</td>
<td>PR</td>
<td>35.913</td>
<td>10.111</td>
</tr>
</tbody>
</table>

#### 2.1 ICRG’s Political risk rating

The political measure from PRS group is used in a wide range of topics in economics and finance research, such as corruption (i.e. [Fan et al., 2009](#)), foreign direct investment (e.g. [Kolstad and Villanger, 2008](#)), institutional changes (e.g. [Gradstein, 2007](#) and [BAE and Goyal, 2009](#)), and country risk (e.g. [Bekaert et al., 2014](#), [Baldacci et al., 2011](#) and [Hoti, 2005](#)). The main advantages in their political risk measure are: it is the longest running data series for political risk and country risk (since 1980) for 130 countries, and the data is available in monthly basis.

The International Country Risk Guide (ICRG) rating is an index build based on 22 variables in three subcategories of risk: political, financial and economic. There is a separate index for each of the subcategories. The Political Risk index is based on 100 points. The Political risk rating scores, ranging from zero to 100, are then broken into categories from Very Low Risk (80 to 100 points) to Very High Risk (zero to 49.9 points). The aim of this measure is to evaluate political stability of the countries covered by
ICRG on a comparable basis. The methodology description[^1] argues that their measure is consistent between countries and time because "points are assigned by ICRG editors on the basis of a series of pre-set questions for each risk component". The components of the political risk rating are the following:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points (max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government stability</td>
<td>12</td>
</tr>
<tr>
<td>Socioeconomic conditions</td>
<td>12</td>
</tr>
<tr>
<td>Investment profile</td>
<td>12</td>
</tr>
<tr>
<td>Internal conflict</td>
<td>12</td>
</tr>
<tr>
<td>External conflict</td>
<td>12</td>
</tr>
<tr>
<td>Corruption</td>
<td>6</td>
</tr>
<tr>
<td>Military in politics</td>
<td>6</td>
</tr>
<tr>
<td>Religious tensions</td>
<td>6</td>
</tr>
<tr>
<td>Law and order</td>
<td>6</td>
</tr>
<tr>
<td>Ethnic tensions</td>
<td>6</td>
</tr>
<tr>
<td>Democratic accountability</td>
<td>6</td>
</tr>
<tr>
<td>Bureaucracy quality</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

Figure[^1] shows the sovereign spreads and our political risk measure. The figure shows 4 of the BRIC countries, a subsample of our whole sample which represents some of the biggest economies in our data. We can see that there is a high correlation between the political risk and the sovereign spreads.

Figure 1: (1)f J. P. Morgan’s EMBI+ stripped spread and (2) 100-ICRG’s Political risk rating

[Bekaert et al., 2014] try to evaluate if this political risk rating is measuring the actual political risk. To do that they check if the measure has predictive power over political risk realizations. To do that they use to different measures of realization, political risk insurance claims and political risk news, scraped from Internet sources.

With data from Overseas Private Investment Corporation (OPIC), the U.S. government’s political risk insurance agency, they show that the ICRG rating has predictive power on average. The authors show that ICRG political risk rating explains the number of news ratio over total news about the country for horizons up to 5 years ahead. Besides that the authors find that the correlation between the political risk measure and the financial economic ratings are low suggesting that it is not measuring other type of risks. All these results suggest that ICRG political risk rating is a good measure of the actual political risk.

3 Empirical Approach

In the first part of this section, we use a local projection approach, as in [Jordà, 2005], to provide some evidence of how the political shocks affect the sovereign spreads without imposing any kind of recursive identification.

In the second part of this section, we propose a simple Structural VAR that generates impulse responses for the sovereign spread in line with local projection.
3.1 Local Projection

The local projections approach [Jordà, 2005] to infer the impulse-responses of the sovereign spreads in response to political risk shocks. This methodology is particularly convenient in the context of this paper, because the timing identification restrictions of our benchmark SVAR can be a question of debate. Moreover, we cannot test if the true DGP is not a VAR. Therefore, the main advantage of this method is that it is more robust to misspecification than the traditional SVARs.

This method consists on the projection of leads of variable of interest onto past values of control variables and current forecast error of the variable that generates the impulse. To obtain the forecast error ($\epsilon^{PR}_{i,t}$) for the political risk we perform the regression:

$$\Delta PR_{i,t} = \alpha_i + \beta_{PR}X_{i,t} + \epsilon^{PR}_{i,t} \quad (1)$$

in which $\alpha_i$ are the fixed effects for country and $X_{i,t}$ consists in 12 lags of: the log difference of the US industrial production, the log difference of the effective FED funds rate, log difference of the VIX, log of (100-Political risk rating), the log difference of the home country industrial production and the log difference of the sovereign spreads. Then we perform the regression:

$$\Delta ss_{i,t+h} = \alpha_i + \gamma^h_{i,t}\epsilon^{PR}_{i,t} + \beta_{SS}X_{i,t} + \epsilon^{SS}_{i,t+h} \quad for \quad h = 1, 2, 3.. \quad (2)$$

$\Delta ss$ is log difference of the sovereign spread for each country and the control variables are the same as the previous mentioned ones when obtain the forecast error for the Political Risk.

Opposite to the approach in the VAR procedure our impulse responses are obtained performing one regression for each horizon $h$. This allows our impulse responses to be different depending on the horizon and also does not impose that they are a linear combination of the same reduced form VAR from the Wold form.

This approach imposes that the effect over all the countries analyzed is the same, but with this approach it is easy to check heterogeneity between subgroups of the Emerging Markets. It can be interesting to analyze some heterogeneous affects depending on the quality of the government stability and the protection of the investor as in [Huang et al., 2015], in a different causal framework.

In the Figure 2 we present the impulse responses. The result presented there is the cumulative IRF for $\Delta ss_{i,t+h}$. A interesting feature from this approach is that a shock in the political risk does not have a significant effect over periods beyond 6 months. Using this new approach we find results that differ from those on previous research [e.g. [Baldacci et al., 2011], [Bekaert et al., 2014] and [Duyvesteyn et al., 2016]] which point that the political risk plays an important role as a determinant of the sovereign spreads.
spread. Using this new approach show that maybe political risk is not so important for the sovereign spread determination in Emerging Markets. Kilian and Kim, 2009 show evidence that even if the local projection is not a good way to deal with misspecification, this method can perform worse than a SVAR approach in small samples. They find evidence that the local projection estimators have a bigger bias and a wider variance than the impulse responses coming from VAR approach in small samples and that the accuracy is even worse when bootstrapping the confidence intervals. Aware of that, in the next section we propose a structural VAR with a simple timing identification of the shocks and show evidence of the similar effects in the sovereign spreads in response of a political risk shock.

3.2 Structural VAR

The goal of this section is to propose a Structural VAR approach incorporating the most important determinants of the sovereign spread proposed by the literature. Besides that we also incorporate our measure of political risk to analyze how important political risk shocks are to the sovereign spreads and business cycles in Emerging markets. Then we will check how
the sovereign spread affects the business cycles. 

[Uribe and Yue, 2006] use the structural VAR approach to find what changes the sovereign spread and the effect in the business cycles. The authors propose a model with real gross domestic output ($y_t$), real gross domestic investment ($i_t$), the trade balance to output ratio ($tb_t$), the sovereign spread plus the 3 month treasury bill ($R_t$) for the emerging markets and the 3 month treasury bill for US ($R_{US}^t$) to disentangle the determinants of the sovereign spread. The authors estimate a VAR(1) model and impose a cholesky decomposition to identify the structural shocks and propose the following ordering for the VAR: $[ y_t i_t tb_t R_{US}^t R_t ]^t$. They impose that US interest rates are orthogonal to all the shocks coming from the emerging country. With these variables the authors use most of the economic factors that literature suggests that are important for the sovereign spreads.

Another factor that is important to sovereign spread is the financial uncertainty, as argued by [Huang et al., 2015] there is a flight to quality effect when the uncertainty rises which raises the sovereign spreads. To incorporate this issue we introduce VIX as a measure of uncertainty. In the paper [Bekaert et al., 2013], they estimate four variables benchmark VAR are collected in the vector $[BC_t, MP_t, RA_t, UC_t]$ where the variables: risk aversion and uncertainty proxies (RA_{t} and UC_{t}), the real interest rate as a measure of monetary policy stance (MP_{t}), and the log-difference of industrial production as a business cycle indicator (BC_{t}). The risk aversion and uncertainty measures come from the VIX. Another advantage of the variables chosen in this paper is that they use as proxy for the business cycles the industrial production, which is available in monthly basis, because our sample is relatively short. The authors in the benchmark model use a cholesky decomposition to identify the shocks.

Our benchmark structural VAR follows the approaches in [Uribe and Yue, 2006] and [Bekaert et al., 2013]. For the US economy we employ the same ordering as [Bekaert et al., 2013], but our volatility variable is only VIX and not their decomposition between uncertainty and risk aversion. Our basic estimation also imposes that shocks in Emerging markets does not affect the US economy as in [Uribe and Yue, 2006]. We estimate the following VAR(12):

$$
A \begin{bmatrix}
BC_{*,i,t} \\
MP_{*,i,t} \\
VIX_{i,t} \\
PR_{i,t} \\
BC_{i,t} \\
SS_{i,t}
\end{bmatrix} = 
\begin{bmatrix}
\alpha_i^{BC*} \\
\alpha_i^{MP*} \\
\alpha_i^{VIX} \\
\alpha_i^{PR} \\
\alpha_i^{BC} \\
\alpha_i^{SS}
\end{bmatrix} + B(L) 
\begin{bmatrix}
BC_{*,i,t-1} \\
MP_{*,i,t-1} \\
VIX_{i,t-1} \\
PR_{US,t-1} \\
BC_{i,t-1} \\
SS_{i,t-1}
\end{bmatrix} + 
\begin{bmatrix}
\epsilon_{BC*,i,t} \\
\epsilon_{MP*,i,t} \\
\epsilon_{VIX,i,t} \\
\epsilon_{PR,i,t} \\
\epsilon_{BC,i,t} \\
\epsilon_{SS,i,t}
\end{bmatrix}
$$

(3)

the variables with star represent the US variables. BC is the log difference of industrial production as a measure of business cycles, MP is the log of
the effective FED funds rate as measure of monetary policy, VIX is the log difference of VIX, PR is our political risk measure and SS is the log difference of the sovereign spreads. The \( \alpha_i \) represent the fixed effects for each country. Moreover to identify the shocks we impose a cholesky decomposition.

The ordering of the political risk in the VAR is the issue that can raise more debate because the ordering for the other variables are standard in the literature. If we consider that our measure is a good measure of the actual political risk, as argued before in the discussion about our political risk measure. The literature over political business cycles divide between the effects of political changes over the economy and the economic factors over the political outcomes. The results about the effects of the political cycles over the economic outcomes are mixed and are summarized in [Lohmann and Drazen, 2001]. But as we are not imposing anything about how the political risk shocks affect the economy this not a big issue for us. Though as we are imposing a cholesky decomposition is important that the economic factors do not have influence on the political risk contemporaneously. Using a large cross section of countries, [Brender and Drazen, 2008] find that for less developed countries inflation does not affect the political outcomes and output growth does affect the political economy but not contemporaneously. The results coming from [Brender and Drazen, 2008] and the close relation between our structural VAR results and the results from the local projection indicates that our ordering is appropriate for our empirical approach.

Figure 3 presents the impulse responses of the home country in respect to a political risk shock. The half life of the political risk shock is 10 months. The IRF suggests that the political shock have a very limited impact in the business cycle variable (IP). There is a small significant effect just in the first period. For the sovereign spread, we can check that our results suggest that the a political risk shock increases the sovereign spread by less than 2% and this positive effect dies out after 15 months. The impact presented here is similar to the one presented in Figure 2 which suggests that political risk shocks are not a source of increase in the sovereign spread in the long-run. Our results here indicate that political risk shocks are not the source of business cycles for Emerging markets.

The second objective of this article is to check how important sovereign spread is in explaining the business cycles with a new feature in the model which is the political risk. The first point to be noted is that our impulse response for the sovereign spread shows that a country risk spread shock has a long-run effect in itself. An one standard deviation shock translates in an increase of almost 19% in the long-run in the sovereign spread. The sovereign spread is not the monetary policy instrument but it is closely re-
Figure 3: Shock of political risk in: (1) US industrial production, (2) Effective FED funds rate, (3) VIX, (4) Political Risk, (5) Industrial Production and (6) Sovereign spread and 95% bootstrapped confidence intervals (dashed lines). The sample period is December 1997– January 2017.

lated to it. We can see that the effect on the the business cycles is similar to the monetary policy shock in the US over the industrial production there. Moreover, we have a interesting result showing that the trigger over the political risk and the business cycles is contemporaneous. After 10 months that this shock hits the economy, there is a significant negative effect over the industrial production and a positive effect over the political risk. This suggests that maybe a shock in the sovereign spread is affecting the economy not only by the the economic and financial variables but also through a change in the political risk (i.e a risk of some kind of political expropriation risk over investment). Thus, it can exist a link that has been ignored by the literature but plays a role. The results in [Uribe and Yue, 2006] differ from the ones presented here. There, the country spread depresses output in short horizons and do not have a permanent effect on output in the long-run as in here.

A shock in US monetary policy decreases the political risk and slightly increase the industrial production in the emerging markets for the short-run. Our IRFs suggest that this shock is one that explain most of the variation in the sovereign spreads, an one standard deviation shock in the monetary policy variable increases the sovereign spread by 15%. [Uribe and Yue, 2006]
find that a shock in the monetary policy in US initially decreases the sovereign spread and do not find a significant effect. For the US the results are in line with the literature, this shock depresses the industrial production and increase the volatility in the long run.

Another result that is really interesting is the effect of VIX over the variables. As pointed by [Bekaert et al., 2013] the index can be decomposed in uncertainty and risk aversion. Both of these components should affect the sovereign spread. [Huang et al., 2015] show that a raise on volatility increases the spreads but do not affect the US interest rates.

Our results indicate that the effects of the volatility shocks are totally different for Emerging Markets and US. For volatility shocks, the effective fed funds rate decreases for long horizons (greater than 10 months) and the sovereign spread increases in short horizons and this effect goes to zero for horizons bigger than 10 months. This is another result that differs from the previous research about the determinants of sovereign spreads. The results for the business cycle variables are also different, the shocks do not have a significant effect over the US industrial production but have negative long-run effect over the Emerging Market’s industrial production. The

![Cumulative IRF graphs]

Figure 4: Shock of Sovereign Spread in: (1) US industrial production, (2) Effective FED funds rate, (3) VIX, (4) Political Risk, (5) Industrial Production and (6) Sovereign spread and 95% bootstrapped confidence intervals (dashed lines). The sample period is December 1997– January 2017.
volatility shocks also have a positive effect on the political risk, the effect over this variable is small and it is significant just for horizons bigger than 16 months.

In Appendix A we present the impulse responses for the other shocks. A business cycle shock in US does not affect the emerging markets, there is a really small significant increase on the political risk and decrease on the sovereign spread but just for one month, moreover it decreases the VIX. A business cycle shock in Emerging Markets cause a long-run effect in the industrial production and an increase in the sovereign spread after a small decrease in the short horizons. Moreover, there is a fall in the political risk for short horizons that is not significant for horizons bigger than 6 months.

4 Conclusion

This paper tries to incorporate how political risk shocks affect the sovereign spreads and the business cycles in emerging economies. Several papers showed that political risk influences the sovereign spreads (e.g. [Bekaert et al., 2014] and [Baldacci et al., 2011]) and that the sovereign spreads explain part of
the business cycles in emerging markets (e.g. [Uribe and Yue, 2006]). Thus the contribution of this paper is to address a different empirical approach to disentangle the interconnections in emerging markets between internal and external macroeconomic factors and political risk issues. To do that we propose a local projection approach that does not impose any restriction on the relation between the shocks. Than we argue that our simple cholesky decomposition can identify the shocks. Our results from a Structural VAR imposing a Cholesky decomposition are similar with the ones in the local projection indicating that our restriction is appropriate. Our results suggest that political risk might be not so important for sovereign spreads determination as previous research pointed. Although, there is a short-run impact on the sovereign spread and on the business cycles proxy coming from political risk shocks. Moreover, the main sources of fluctuation in the business cycles are due financial uncertainty and the sovereign spreads. The sovereign spreads respond to shocks in the political risk and the financial uncertainty in the short-run and to US interest rate and business cycles in the home economy for the long-run. Besides that the macroeconomic variables do affect the political risk in the expected way.
This paper can be extended in different ways, especially for the microfoundation of the country risk spread due to political risk. [Arellano, 2008] propose a microfoundations for the country risk spread in the emerging markets but in her model there is not political uncertainty embodied. There are some recent developments trying to incorporate political uncertainty and its effects on the asset prices and the economy (e.g. [Pastor and Veronesi, 2012]) This can enhance our knowledge of what drives the business cycles in emerging economies.
References


A Impulse Responses

Figure 7: Shock of US industrial Production in: (1) US industrial production, (2) Effective FED funds rate, (3) VIX, (4) Political Risk, (5) Industrial Production and (6) Sovereign spread and 95% bootstrapped confidence intervals (dashed lines). The sample period is December 1997– January 2017.
Figure 8: Shock of Industrial Production in: (1) US industrial production, (2) Effective FED funds rate, (3) VIX, (4) Political Risk, (5) Industrial Production and (6) Sovereign spread and 95% bootstrapped confidence intervals (dashed lines). The sample period is December 1997– January 2017.