Can International Legal Rulings Deter? Financial Markets Say Yes

Jeff Kucik (CCNY) & Krzysztof J. Pelc (McGill)

IPES 2014, Washington, DC.
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Yet courts have narrow formal mandates,

Are courts able to exceed these mandates and deliver on the lofty hopes?
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Are courts able to exceed these mandates and deliver on the lofty hopes?
Do international rulings have spillover effects?

- Prevalent hope that when ruling on one measure, courts can deter similar violations elsewhere.

- E.g. human rights literature largely vested in this being true.

- Kim and Sikkink (2010) posit a “deterrence across borders” effect; portray it as a central goal of the regime.

- Others disagree: Richard Goldstone calls the prospect of deterrence “hopelessly idealistic.”
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Motivation

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What Does the Law Say?

- International law is unambiguous: rulings have no spillovers:

  - ICJ Statute, Article 59:
    "a decision of the ICJ has no binding force except between the parties and in respect of the particular case."

  - Similarly in the WTO:
    Article 3.2 of the DSU : "rulings [...] cannot add to or diminish the rights and obligations..."

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Consider *Japan—Apples*

- US challenges Japan’s apples ban at the WTO in 2003.

  - When the ban is shown to be in violation, other apple exporters like New Zealand rejoice: "there is no need to take a dispute case against Australia [...] as the WTO has already ruled comprehensively on the issue in a case between Japan and the United States." — NZ Trade Minister

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How Does Deterrence Operate?

- **Domestic mobilization.**
  In the *Apples* case: "Labour has no more excuses for failing to get action on apple access to Australia after the WTO ruling on the case between the United States and Japan... Labour owes it to our apple growers." — NZ opposition party

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- Financial markets provide us with revealed aggregate beliefs.
- Markets take sides in the debate over deterrence.
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Deterrence in Solar Energy?

- In 2011 Japan & EU successfully challenge Canada’s solar energy program.

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Indian Firms during Canadian Rulings
Indian BSE Index during Canadian Rulings
Do markets make the link?

- We collect daily share prices of publicly traded solar companies in Canada, the US, and India, for Nov 2011 to Dec 2013.
- 8 firms in Canada, 6 firms in US, 11 firms in India.
- We use daily index prices to build the counterfactual: TSX for Canada; NYSE and NASDAQ for the US; Bombay Stock Exchange for India.
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Event Study

Event studies look for abnormal prices:
Abnormal prices \( (a_{i,t}) \) are calculated as the difference between the expected price \( (e_{i,t}) \) and the observed price \( (p_{i,t}) \):

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\text{Abnormal Price} \ (a_{i,t}) = \text{Expected Price} \ (e_{i,t}) - \text{Observed Price} \ (p_{i,t})
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We estimate expected prices \( (e_{i,t}) \) by regressing the observed price \( (p_{i,t}) \) for each company on the daily index value over the specified estimation window.

We also control for the daily Exchange Rate\( j_{i,t} \) with the Euro.
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Findings: CANADA firms (the losers)

- Prices of 7 of 8 Canadian firms significantly (abnormally) below expectations 10 trading days after panel ruling. Collectively also abnormal.

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- Following panel report, a majority of firms (7 of 11) show abnormally low prices; yet as a group, fall short of statistically significantly abnormal.

- By contrast, AB ruling leads to significantly abnormal prices.
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<table>
<thead>
<tr>
<th>Model</th>
<th>Panel</th>
<th>(5)</th>
<th>(6)</th>
</tr>
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<tbody>
<tr>
<td>Est. Window / Event Window</td>
<td>50 / 10</td>
<td>50 / 10</td>
<td></td>
</tr>
<tr>
<td>Index</td>
<td>Mumbai</td>
<td>Mumbai</td>
<td></td>
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<tr>
<td>Bharat Electricals</td>
<td>-200.177</td>
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<td></td>
<td>(-27.353)</td>
<td>(-16.255)</td>
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<td></td>
<td>(7.758)</td>
<td>(-21.429)</td>
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<td>Indian Oil Company</td>
<td>9.320</td>
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<td>(-24.020)</td>
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<td></td>
<td>(9.516)</td>
<td>(-3.094)</td>
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<td>Lanco Infratech</td>
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<td>-18.702</td>
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<td>(-7.319)</td>
<td>(-16.516)</td>
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<td>(-58.707)</td>
<td>(-10.736)</td>
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<td>Punji Lloyd</td>
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<td></td>
<td>(10.864)</td>
<td>(24.619)</td>
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<td>Solar Industries India</td>
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<td>-683.926</td>
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<td></td>
<td>(-9.145)</td>
<td>(-4.310)</td>
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<td>Sujana Towers</td>
<td>-11.593</td>
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<td></td>
<td>(-0.616)</td>
<td>(27.187)</td>
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<td>Tata Power</td>
<td>-8.980</td>
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<td>(-2.125)</td>
<td>(25.425)</td>
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<tr>
<td>Test of significance</td>
<td>-86.250</td>
<td>-159.776**</td>
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</tr>
<tr>
<td></td>
<td>(52.889)</td>
<td>(66.667)</td>
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</table>

Test statistics in parenthesis. Absolute values greater than 1.96 represent a significant difference from zero at the 5% level.
Expected vs. Realized Indian Prices After AB Ruling

Cumulative Abnormal Prices

Companies:
- Tata Power
- Lanco Infratech
- Jain Irrigation
- HBL Power
- Bharat Heavy Electricals
- Indian Oil Company
- Maharashtra Seamless
- Punji Lloyd
- Indosolar
- Solar Industries India
- Sujana Towers

Cumulative Abnormal Prices

-750 -375 0 375 750
Days around Appeal Decision

-60 -40 -20 0 20

Observed Firm Price

Predicted Firm Price

Prices

170 180 190 200

-60 -40 -20 0 20

Observed Firm Price

Predicted Firm Price

Findings: US firms (the control group)

- Neither the panel nor the AB ruling lead to abnormal prices.
Test 2: Commodities

- Would we see a similar effect across different products?

- Consider an alternative dispute: US—Upland Cotton.
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US—Upland Cotton

- **Brazil challenges** American cotton subsidies in 2002, claiming they *depress world prices*.

- Important legal victory that *clarifies the rules* on subsidies.

- Observers start talking about the meaning of the ruling for subsidies of all kinds in the US and Europe: people speak of the "Brazilian precedent".
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Spillover effects of US—Upland Cotton on Wheat?

WTO ruling threatens wheat subsidies

Ripple effect likely from cotton decision.

By Alwyn Scott
Seattle Times business reporter

A World Trade Organization decision yesterday saying the U.S. illegally subsidizes its cotton farmers could threaten millions of dollars paid to wheat growers in Washington, and possibly affect other farm subsidies here as well.

The case, brought by Brazil, is the first successful challenge to U.S. domestic farm aid under WTO and is likely to spur challenges to support for other crops, analysts said.
FINDINGS: Spillover effects of *US—Upland Cotton*

- The risk of subsidies being removed should send prices **up**.

  - (1) Cotton prices: rise **abnormally** following both rulings, but more significantly following the panel ruling.

  - (2) Wheat prices: rise **after both rulings**, but more significantly following AB ruling.

- The variation between panel and AB rulings appears **systematic** across both dispute.
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Wheat Prices After Panel and AB Ruling

Estimation Window

Panel Ruling

AB Ruling

Time
Conclusion?

- Do international rulings have effects beyond the case at hand?
  - The rules say NO. Financial markets say yes.
  - By the sum of individual actions, markets effectively side with one view of courts over the other.
  - Markets valuation provides an overlooked means of gauging aggregate expectations around social phenomena.
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IPES 2014, Washington, DC.
Calculating cumulative abnormal prices

For event windows larger than one day, the cumulative abnormal prices \((c_{i,N})\) are the sum of \(a_{i,t}\) over the event window \((t = 0, 1,...N)\):

\[
c_{i,N} = \sum_{i=1}^{N} a_{i,t}
\]
To measure the significance of the abnormality, we calculate a test statistic:

$$Test_{i,N} = \frac{1}{\sqrt{N}} \times \frac{c_{i,N}}{sd_{i,N}}$$

where $sd_{i,N}$ is the standard deviation of the abnormal prices.