Spinning Gold: The Financial Returns to External Stakeholder Engagement

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The Wharton School
Widespread intuition and executive confidence that CSP → CFP receives, at best, mixed empirical support

- Incomplete operationalization of theory
  - Managerial agency
  - Value chain (& activist) redistribution
  - VS.
  - External stakeholders

- Imperfect match of data to theory
  - Corporate-level self-reports & audits
  - VS.
  - Operational-level stakeholder event data & objective asset valuation
“It used to be the case that the value of a gold mine was based on three variables: the amount of gold in the ground, the cost of extraction, the world price of gold. Today, I can show you two mines identical on these three variables that differ in their valuation by an order of magnitude. Why? Because one has local support and the other doesn’t.” (Yani Roditis, COO Gabriel Resources)

“Any mining company that operates anywhere thinking that their core competence will be mining won’t survive. It’s that simple.” (Thero Setiloane, EVP Sustainability, Anglo Gold Ashanti)
Motivation III: What Determines Valuation? Not the Price or Quantity of Gold
Motivation III: What Determines Valuation? Political & Social Support

- NGO activist Roth launches campaign
- Government Suspends EIA
- Arrival of new govt. & CEO who launches counter-campaign
- Election returns pro-mine govt. + new high-powered investors
- Removal of Timis & cronies Land acquisition
- Continuing opposition → delay
Managerial Agency

Figure 1 — The seven core subjects at a glance

Social Responsibility

- Labour practices
- Environment
- Fair operating practices
- Human rights
- Consumer issues
- Organizational governance
- Community involvement and development
Stakeholder Redistribution

- Environmental Impact
- Supplier Access and Viability
- Energy Use
- Water Use
- Employee Health
- Employee Skills
- Worker Safety

Company Productivity

Or π
Stakeholder Redistribution

Activists
(Instrumental) Stakeholder Theory

Source: Donaldson and Preston, 1995
Anecdotal Evidence on Delays & Disruptions

- Teaching cases
  - AES Telasi: Russians fail to supply gas $\rightarrow$ blackouts
  - Thai Petrochemical Industries: Illiquid during East Asian crisis. Took 10 years for creditors to be partially compensated
  - Rosia Montana: $15b still sitting in Transylvanian mountains

- Consulting reports
  - Cost of stakeholder delays over decade for Shell
    - $10b, 65% of which linked to stakeholder opposition
  - IFC/Deloitte project valuation tool on Newmont gold mine in Ghana
    - $118m up-front investment in community development has +ve npv of $1.2b
Empirical Limitations of Extant Literature

- Corporate-level data
  - Financial
    - Market capitalization
    - Tobin’s q
  - Subjective opinions of policies or principles

- Empirical analysis
  - Positive vs. negative correlation?
  - Contingencies consistent with managerial agency costs or value chain supply/demand

- Questions
  - Reverse causation
  - Mechanisms don’t include instrumental stakeholder theory’s delays & disruptions
Empirical Analysis at Micro- or Project-Level

- Project-level data
  - Easier to objectively calculate
    - Potential npv of project
    - Financial valuation (and/or gap from above)
  - Feasible to collect stakeholder data on conflict-cooperation
    - Related empirical work
      - Negative impact of disasters/scandals
      - Dynamics of international state conflict
      - Positive impact of “reputation”
        - Amazon, Ebay, movie reviews, ...
      - Stock prices
Empirical Context

- Population of 19 publicly traded (TSX) corporations that own and operate 1-3 gold mines

Data availability
- Listing requirements on TSX disclose npv of mine according to financial and engineering “plan”
- Hand-code 50,000+ stakeholder events from 20,000+ FACTIVA articles directly linked to projects (i.e., mines) using 2,500 RA hours
- Stock market capitalization provides independent financial market valuation including discount or forecast delays/disruptions

- Direct economic value chain impact appears small
  - Consumers don’t differentiate
  - Little evidence international suppliers or workforce punishes non-responsible mines
Country locations of mines
Valuation of a Gold Mine Resource

\[ V_{it} = B_0 + \left( W_{it} S_{it} \frac{1-e^{-r_t(T_{it}-y_{it})}}{r_t(T_{it}-y_{it})} \right) B + \varepsilon_{it} \],

where

- \( V_{it} \) = Value of gold mine \( i \) in time \( t \)
- \( W_{it} \) = Average forecast operating profit per unit gold of gold mine \( i \) in time \( t \)
- \( S_{it} \) = The quantity of gold reserves of gold mine \( i \) in time \( t \)
- \( T_{it} \) = Life expectancy of gold mine \( i \) in time \( t \)
- \( y_{it} \) = years of operation of gold mine \( i \) in time \( t \)
  - 0 if not yet operational, <0 if opening in future
- \( r_t \) = Treasury bond yield with term \( T-y \) in time \( t \)
But, the Stock Market Indicates a Heavy Discount: Gold Ridge
Can Stakeholder Conflict & Cooperation Explain the Gap?

- Even in asset transactions, market discounts value of gold mines by ~30% (Cairns & Davis, 1998)
- We link the magnitude of this discount for publicly traded companies to the degree of conflict & cooperation with stakeholders
  - Rely on media (domestic and international industry) to define actors with political, social or economic stake in mine
  - Code ‘stakeholder events’ in which a person or organization acts or speaks in a manner that conveys or signals cooperation or conflict
    - Identify subject-verb-object triples
    - Code verb on modified WEIS conflict cooperation scale
    - Use depreciating rolling average of dyadic score
ASG Chairman Stephen Everett also praised RAMSI and local police and thanked the Solomons government for its positive support. [Australian Associated Press General News, May 12, 2005]

- **Source:** ASG Chairman Stephen Everett
- **Verb:** praise and thank = 3 on the conflict-cooperation scale
- **Targets:**
  - RAMSI [the Regional Forces led by Australian troops]
  - Local Police
  - Solomons Government
On September 14th 2007, President Nursultan Nazarbayev of Kazakhstan ceremonially kicked off the process of extracting gold and copper ore at the Varvarinskooye deposit. He was quoted as saying that this mine is one of many enterprises in the region that will “build up the power of Kazakhstan’s economy.

- **Source:** President Nazarbayev
- **Verb:** ceremonially kicked off = [show support] or 4 on the conflict-cooperation scale
- **Target:** Varvarinskooye deposit [owned by European Minerals Corporation]
[George] Salamis [President of Rusoro, Russian firm] shied away from commenting directly on the importance of Rusoro's Russian component but instead said: "We wouldn't be anywhere in Venezuela if it weren't for the great connections we've built with the Venezuelan government at all levels." [Northern Miner 30 June 2008]

- Sources: Salamis - President of Rusoro
- Verb: build connections = [positive relations with] or 3 on the conflict-cooperation scale
- Target: Venezuelan government
Mr. Kabila has ordered foreign companies operating there to negotiate or see their concessions sold to rivals. The companies involved - the Toronto-based exploration company Banro Resource, a Belgian-Canadian consortium called Mindev and Barrick Gold, one of the world's largest gold companies - are in an unenviable position. (The Financial Times, 17 January 1997)

- **Source:** Mr. Kabila [leader of ADFL rebel group]
- **Verb:** has ordered... to negotiate or see their concessions sold
  - [THREAT] = -4 on conflict-cooperation scale.
- **Target:** Foreign companies
  - Banro, Mindev & Barrick
Kabila's government *is fighting for its survival* as rebels *backed by* neighboring Rwanda and Uganda have pushed their way westward toward the capital city of Kinshasa. Zimbabwe and Angola *are supporting Kabila with arms and troops*. (Financial Post, 28 August 1998)

(1) Source: Kabila’s government; Verb: *fight for survival [against]* [-10]; Target: Rebels

(2) Source: Rwanda [government]; Verb: *back* [+10]; Target: Rebels

(3) Source: Uganda [government]; Verb: *back* [+10]; Target: Rebels

(4) Source: Zimbabwe [government]; Verb: *support with arms and troops* [+10]; Target: Kabila

(5) Source: Angola [government]; Verb: *support with arms and troops* [+10]; Target: Kabila
<table>
<thead>
<tr>
<th>Scale</th>
<th>Category Details</th>
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<tbody>
<tr>
<td>-10</td>
<td>Violent attack w/ actual or potential/intended deaths or serious injury</td>
</tr>
<tr>
<td>-9</td>
<td>Threaten to violently attack w/ actual or potential/intended deaths or serious injury</td>
</tr>
<tr>
<td>-8</td>
<td>Restrain, imprison, hold against will, blockade, arrest, expel, capture, sequester</td>
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<tr>
<td>-7</td>
<td>Financially undermine deploy financial resources against (including sale of financial position at or below market price)</td>
</tr>
<tr>
<td>-6</td>
<td>Threaten to financially undermine threaten/offer financial resources against (including sale of financial position at or below market price)</td>
</tr>
<tr>
<td>-5</td>
<td>Oppose, veto, impose, force, break, halt, reject, flee, default on obligation, rally in opposition, overturn, lose, national political decision in opposition</td>
</tr>
<tr>
<td>-4</td>
<td>Investigate, demand, alert, restrict, repeal of administrative, local or regional supportive policy</td>
</tr>
<tr>
<td>-3</td>
<td>Deny, complain, criticize, denounce, negative comment, reject, accuse</td>
</tr>
<tr>
<td>-2</td>
<td>Call for action, request assistance against</td>
</tr>
<tr>
<td>-1</td>
<td>Delay, request clarification, request information on</td>
</tr>
<tr>
<td>0</td>
<td>Neutral statement of fact</td>
</tr>
<tr>
<td>1</td>
<td>Yield, comply, solicit, request assistance with, vote for, am encouraged by</td>
</tr>
<tr>
<td>2</td>
<td>Mediate, agree, travel to meet, engage, offer, positive comment</td>
</tr>
<tr>
<td>3</td>
<td>Host, praise, empathize, apologize, forgive, assure, thanked</td>
</tr>
<tr>
<td>4</td>
<td>Agreement or receipt/provision of information</td>
</tr>
<tr>
<td>5</td>
<td>Rally in support, ratify, win election, policy decision in support</td>
</tr>
<tr>
<td>6</td>
<td>Offer financial support/defense/protection (including acquisition of a financial stake at market price or above)</td>
</tr>
<tr>
<td>7</td>
<td>Provide financial support/defense/protection (including acquisition of a financial stake at market price or above)</td>
</tr>
<tr>
<td>8</td>
<td>Relax/ease major financial or security penalty/sanction/constraint</td>
</tr>
<tr>
<td>9</td>
<td>Offer armed support/defense/protection</td>
</tr>
<tr>
<td>10</td>
<td>Provide armed support/defense/protection</td>
</tr>
</tbody>
</table>
Current Lexicon for Conflict-Cooperation = 4

accept, accept argument, accept proposal, accept request for arbitration, accept validity, act on behalf of, admit military support, advance, advance negotiations, affirm, agree, agree with, aid, appoint, appoint custodian, apportion, approve agreements, assign, assign to legal case, assist, assure, assure progress, assure rights, assure support, attempt to correct error, back, back up, be lifeline for, bestow favour, boost, boost potential, broker deals, broker meetings, build, build up, campaign for, cite as preference, clarify, clear up confusion, clinch, collaborate [judicially], collaborate [materially], commit support, commit to work together, complete agreement, compromise, conclude agreement, conclude deal, conclude debate, conclude hearing, conclude investigation, conclude negotiation, conclude negotiations, conclude negotiations with, conclude renegotiation of contracts, concord, concur, confirm, confirm appointment, confirm approval, confirm right, confirm support, confirm validity, confirm willingness, consist, constant support, constantly support, constitute, construct, continue commitment, continue dialogue, continue discussions, continue efforts, continue support, continue talks, continue working with, cooperate [judicially], cooperate [materially], corroborate, create jobs, deal, demonstrate goodwill, demonstrate interest, depend on, depend upon, develop jointly with, divvy up, do deals with, drink, earn support, employ, enable, enable improvement, enable issue permit, encourage, encourage to return, encouraged to benefit, end hunger strike, endorse, engage in cooperation, enter agreement, enter contract, enter into contract, enter partnership, exchange documentation, execute agreement, expect to sign, explore idea, explore possibilities, express preference, facilitate meetings, favor, favour, file on behalf of, finalize agreement, finalize contract, finalize negotiations, form agreement, form contract, form deal, further, get together [judicially], get together [materially], give go ahead, give green light, give information, give nod to, give support, give vote of confidence, grant agreement, grant asylum, grant permission, grant privilege, grant recognition, grant rights, have agreement, have agreement with, have approval, have contract, have daily involvement, have direct involvement, have political connections, have potential leverage, have treaty, help, help calm, hire, hold, hold contract, hold press conference, hold up, hope to develop jointly, increase tolerance, inform, install, intervene on behalf of, join alliance, join forces [judicially], join forces [materially], jointly agree on action, jointly develop project, legally transfer, lend hand, make accessible, make agreement, make pact, name, negotiate agreement, negotiate deal, negotiate dispute, negotiate financial agreement, negotiate on behalf of, negotiate payment extension, negotiate with, nominate, NOT disrupt activities, not evict, not file defence, not force merger, not impact, NOT negatively impact, not prohibit, NOT signify annulment of contract, notify, offer assurances, offer jobs, offer material support, offer partnership, open community office, order appointment, partake, partake in, participate in ceremony, participate in meeting, pleaded to collaborate with, pleased with, pledge, pledge to meet standards, pledge to reform, portion out, positive impact, positively influence, possible significant economic impact, potential positive economic benefit, potential positive economic impact, prefer, prevail, privilege, process permits, proclaim commitment, promise, promise action, promise benefit, promise rights, promise support, promise to eradicate, promise to return, promise to vigorously defend, promote, propose social development program, proudly support, prove, provide, provide advisory services, provide agreements, provide assistance, provide employment, provide evidence, provide information, provide leverage, provide material support, provide support, put first, ratify, ratify agreement, ratify convention, reach agreement, reach consensus, reach deal, reach resolution, reach settlement agreement, reaffirm, reaffirm approval, reassure, reassuring comment, rebuild, receive, receive assurances, receive information, receive offers, recognise commitment, recognize social policy, recommend signature, reconfirm, recruit, recruit and train, recuperate, reiterate commitment, reiterate interest, rely on, remain committed, remain confident, remain custodian, remain engaged, remain in good standing with, remain in possession, remain upbeat, remain valid, remove conditions, remove conditions (agreement), remove obstacles, salute, second, secure agreement, secure deal, seek to correct error, seek to merge, settle, settle lawsuit, settle out of court, share, share information, share intelligence, share political views, share resources, sided with, sign, sign accord, sign agreement, sign approval, sign ceasefire agreement, sign contract, sign convention, sign deal, sign decision, sign decree, sign MOU with, sit on board, strengthen ties, strike deal, substantiate, succeed politically, support, support decision, support initiative, sustain, team, team up, team up with, toast, tout excellent relationship, train local workers, validate, vote for, well connected politically, win, work hard toward, work to ensure, work to give approval, work to revive, work together, work with
Temporal Depreciation

- Seek to weigh more heavily
  - More frequently reported conflict-cooperation (i.e., perceived to be more important)
  - More recently reported conflict-cooperation

- Devise formula that allows for missing data

\[
cc^*_t = \sum_{i=0}^{w} \frac{(1-\delta)^i r_{t-i}}{\sum_{j=0}^{w} (1-\delta)^j r_{t-j}} cc_{t-i}
\]

- where:
  - \( r_t = \text{number of reports at time } t \)
  - \( w = \text{window of the moving average} \)
  - \( \delta = \text{discount rate} \)
Conflict/Cooperation Tracks Discount From Market Value: Gold Ridge
We estimate the following random-parameter model:

\[ MV_{it} = \alpha_i + \beta_i \sum_{j=1}^{m} RV_{jit} P_{jit} + \varepsilon_{it} \]

where \( \alpha_i = \alpha + \gamma_{\alpha} v_{i,\alpha} \), \( \beta_i = \beta + \gamma_{\beta} v_{i,\beta} \),

and \( v_{i,\alpha}, v_{i,\beta} \sim N(0,1) \).
<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
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<tbody>
<tr>
<td>Valuation</td>
<td>0.276</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.152)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valuation * Conflict/Cooperation</td>
<td>0.504*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.240)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valuation * ((Conflict/Cooperation + Political Constraints)/2)</td>
<td>0.908*</td>
<td></td>
<td></td>
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<tr>
<td>Constant</td>
<td>151.6***</td>
<td>161.0***</td>
<td>139.4***</td>
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<tr>
<td></td>
<td>(29.30)</td>
<td>(32.95)</td>
<td>(33.77)</td>
</tr>
<tr>
<td>SD(Valuation)</td>
<td>0.414***</td>
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<tr>
<td></td>
<td>(0.114)</td>
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<tr>
<td>SD(Valuation * Conflict/Cooperation)</td>
<td>0.658***</td>
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<tr>
<td></td>
<td>(0.193)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD(Valuation * (Conflict/Cooperation + Political Constraints) / 2)</td>
<td>1.14***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.365)</td>
<td></td>
<td></td>
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<tr>
<td>SD(Constant)</td>
<td>41.391*</td>
<td>78.83**</td>
<td>59.519*</td>
</tr>
<tr>
<td></td>
<td>(26.66)</td>
<td>(31.007)</td>
<td>(36.28)</td>
</tr>
<tr>
<td>Corr (Random Coefficient, Constant)</td>
<td>0.999***</td>
<td>0.999***</td>
<td>-0.183</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.692)</td>
</tr>
<tr>
<td>Observations</td>
<td>147</td>
<td>112</td>
<td>73</td>
</tr>
</tbody>
</table>

Standard errors in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001
Results

- Using random parameter model, investors pay
  - 28 cents on dollar of increase in value of gold reserves unconditionally
  - 50 cents conditional on stakeholder conflict-cooperation
  - 91 cents conditional on political constraints and stakeholder conflict-cooperation

- Results similar using random intercept, fixed effects (w/ ar1)

- No evidence of reverse causality
Conclusion

- Investing in stakeholder cooperation
  - Not just managerial rent seeking
  - Not just supply and demand from economic value chain
  - Alters ability to generate, capture and sustain rents from an existing asset due to reductions in delays/disruptions

- Social license to operate is
  - operationalizable,
  - empirically testable and
  - strategically relevant

- Methodology of broad potential interest
  - International business, finance and insurance
  - Project management and finance
  - Corporate social responsibility
  - Negotiations
  - Communications
  - Reputation management
  - International (and community) development
  - Military strategy & international affairs (e.g., soft power)
Next Steps: This Paper

- Data cleaning: from 10 to 26 mines
- Robustness
  - Variation in conflict-cooperation scale aggregation
    - Temporal decay
    - Adjustment to average level of national conflict-cooperation in discourse
  - Excluding stakeholders in economic value chain
  - Using exogenous variation in gold reserves to further address concerns regarding reverse causality
  - Empirically examine link between cooperation-conflict & delays
    - Use data to alter npv of future revenue stream in less ad hoc manner?
      Or
    - Ex post analysis of predicted delays/disruptions based on magnitude of financial market discount
  - Confirm that mines are not systematically accelerating extraction in countries with high conflict or political risk
  - Weight “news” according to source (major int’l vs. local; secondary vs. primary; reported event vs. observed; English?)

- ADDITIONAL SUGGESTIONS WELCOME
The stakeholder landscape

Banro, Twangiza, DR Congo

Banro (Successful firm)

DRC Govt

2003-5
The stakeholder landscape

Banro, Twangiza, DR Congo

2004-6
The stakeholder landscape

Banro, Twangiza, DR Congo

2005-7
The stakeholder landscape

Banro, Twangiza, DR Congo 2006-8
The stakeholder landscape

Banro, Twangiza, DR Congo

Cooperation = (11-20)
Conflict = (1-9)

2006-8
Next Steps: Next Papers

- Examining (endogenous) stakeholder network dynamics and their financial implications
  - Dynamic expected utility model (Henisz, 2011)
  - Social network & balance theory (Nartey, 2011)
  - Fit with formal political institutions and civil society
  - Proactive vs. reactive stakeholder engagement
  - TMT and other drivers of “better” engagement

- Comparative case studies
  - July 2011: Guinea and Ghana
  - Fall 2011: Peru and Venezuela
  - Winter 2011: Romania & Bulgaria
  - May 2012: Democratic Republic of Congo

- Book project(s) on “Corporate Diplomacy” developing and applying interdisciplinary framework including insights from mining, oil & gas, construction, tourism, development & military

- ...automated coding