

# **SPINNING GOLD: THE FINANCIAL RETURNS TO EXTERNAL STAKEHOLDER ENGAGEMENT**

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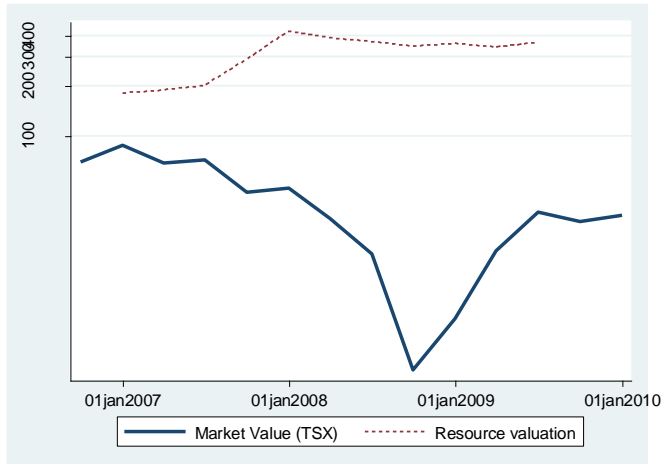
The Wharton School

# Motivation

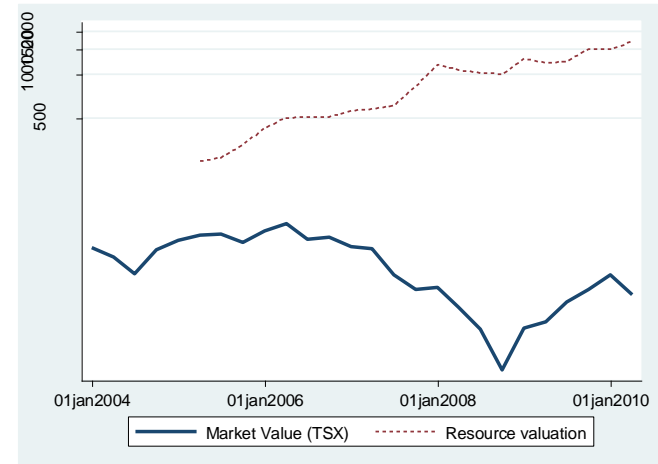
- *“It used to be the case that the value of a gold mine was based on three variables: the amount of gold in the ground, the cost of extraction, the world price of gold. Today, I can show you two mines identical on these three variables that differ in their valuation by an order of magnitude. Why? Because 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, Anglo Gold Ashanti

# Resource Valuation and Market Value

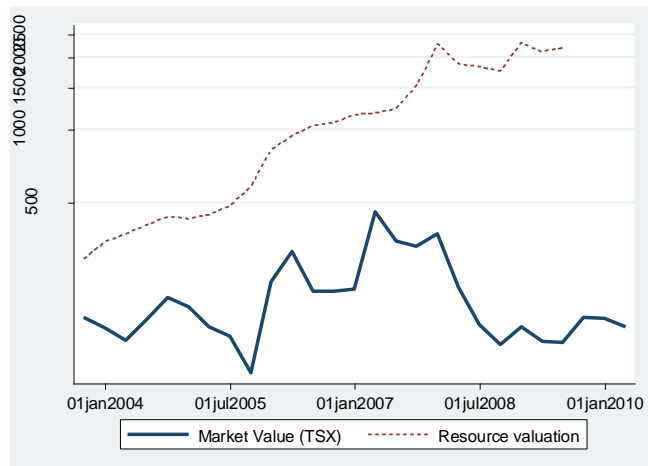
AUSTRALIAN SOLOMONS GOLD LIMITED: GOLD RIDGE



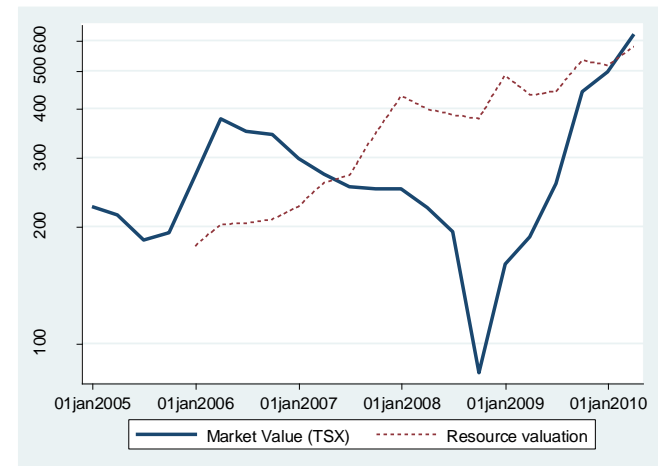
MUNDORO: MAOLING



GOLD RESERVES: BRISAS



NEVSUN: BISHA



# The Macro- and Micro-level Political Environment of International Investment

- IPE literature: the macro-level political environment (political regimes, property rights, rule of law, etc.) affects the investment decisions of multinational firms
- IB literature: the obsolescing bargaining model emphasizes the shifting balance of power from MNCs to national governments
- *The political environment varies at the macro-level across countries and time, as well as at the micro-level within countries across actors and time*
  - Within the constraints of a political system, MNCs choose *whom, when* and *how* they engage external stakeholders (political leaders at the local, regional, national or international level, formal and informal leaders in the community or civil society, NGOs)
  - Their choices (certain associations with political players, involvement of the local community, etc.) affect their relationships with various stakeholders, which in turn affect the extent to which the MNC projects harness local support – i.e. have a “*social license*” to operate

# 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 project-level degree of stakeholder conflict-cooperation and country-level political risk.*
- Context: 19 publicly traded (TSX) corporations that own and operate 1-3 gold mines
  - Stock market capitalization provides independent valuation
  - Disclosure requirements reveal NPV of mine (Resource valuation)
  - 20,000+ FACTIVA articles code 50,000+ stakeholder events (Stakeholder cooperation-conflict)

# Measuring Stakeholder Conflict-Cooperation

- Rely on media (domestic and international industry) to define actors with a political, social or economic stake in the mine
- Code all '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 WEISS conflict cooperation scale
  - Use depreciating rolling average of dyadic score

Example: European Minerals Corporation: Varvarinskoye, Kazakhstan

On September 14<sup>th</sup> 2007, President Nursultan Nazarbayev of Kazakhstan **ceremonially kicked off** the process of extracting gold and copper ore at the Varvarinskoye 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: Varvarinskoye deposit [owned by European Minerals Corporation]

# Stakeholder Con-Coop: 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 periods with no reports

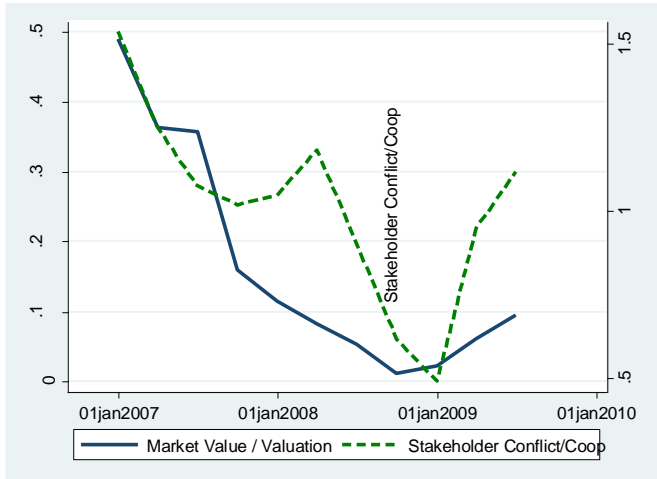
$$cc_t^* = \frac{\sum_{i=0}^w (1-\delta)^i r_{t-i}}{\sum_{j=0}^w (1-\delta)^j r_{t-j}} cc_{t-i}$$

where:

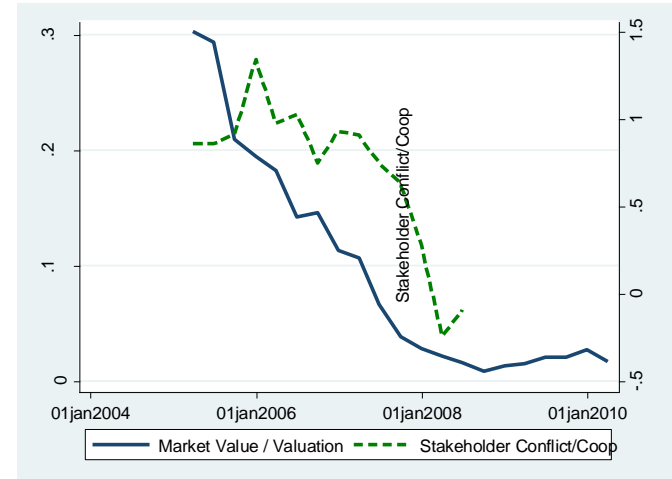
- $r_t$  = number of reports at time  $t$
- $w$  = window of the moving average
- $\delta$  = discount rate

# Stakeholder Conflict-Cooperation Affects Value

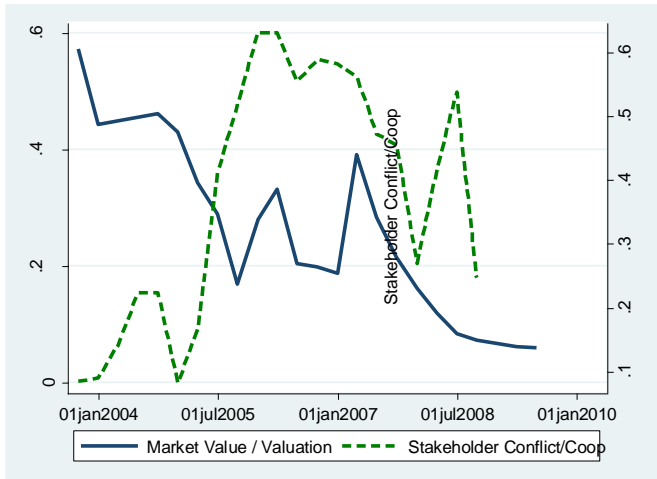
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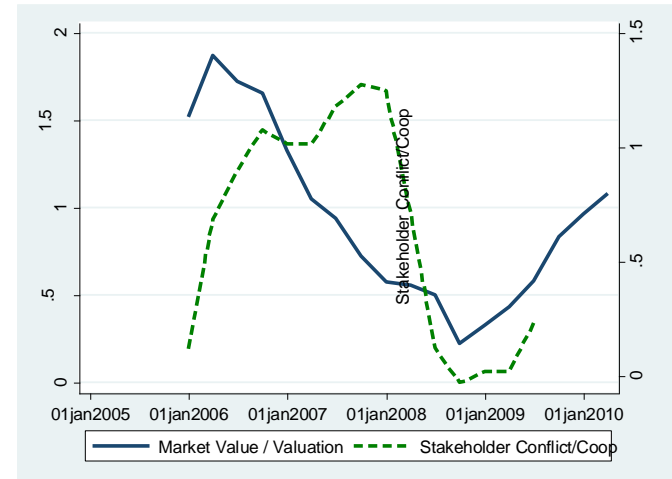
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# Empirical model

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  $v_{i,\alpha}, v_{i,\beta} \sim N(0,1)$ .

# Random parameter estimation

	(1)	(2)	(3)
Valuation	0.276 (0.152)		
Valuation * Conflict/Cooperation		0.504* (0.240)	
Valuation * ((Conflict/Cooperation + Political Constraints)/2)			0.908*
Constant	151.6*** (29.30)	161.0*** (32.95)	139.4*** (33.77)
SD(Valuation)	0.414*** (0.114)		
SD(Valuation * Conflict/Cooperation)		0.658*** (0.193)	
SD(Valuation * (Conflict/Cooperation + Political Constraints) / 2 )			1.14*** (0.365)
SD(Constant)	41.391* (26.66)	78.83** (31.007)	59.519* (36.28)
Corr (Random Coefficient, Constant)	0.999*** (0.000)	0.999*** (0.000)	-0.183 (0.692)
Observations	147	112	73

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 reserve causality

# Conclusion

- Social license to operate is
  - operationalizable,
  - empirically testable and
  - strategically relevant
- Firms' level of conflict or cooperation with stakeholders
  - Alters ability to generate, capture and sustain rents
  - Not just protection but also future value creation

# ANNEX

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# Valuation of a Gold Mine Resource

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

$V_{it}$  = 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  $t$

# Stakeholder conflict-cooperation examples

## B. Banro Corporation: Twangiza mine, Dem. Rep. of Congo

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.

- Source: Mr. Kabila [leader of ADFL rebel group]
- Verb: *has ordered... to negotiate or see their concessions sold* = [threat] or -4 on conflict-cooperation scale.
- Target: Foreign companies (Banro, Mindev & Barrick)

# Scale – Category Description

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