Effects of Equity Financing on Valuation of Junior Gold Mining Companies in Recessionary and Post-Recessionary Economic Realities of 2008-2010

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I.   INTRODUCTION

While classification of gold mining companies can be somewhat ambiguous, PDAC [Prospectors and Developers Association of Canada] (2009), one of the preeminent authorities in mining, provides the following description: "Mining companies are defined largely by the way in which they derive their revenues. A senior producer or operator generates its revenues from the production and sale of the commodity it is mining. A junior mining company has no mining operations and is essentially a venture capital company. It must rely almost entirely on the capital markets to finance its exploration activities. There is another category: mid-tier producers. These are generally junior companies that have decided to go into production on properties that they have discovered" (¶ 2).

From the financial markets viewpoint, there are certain drawbacks and advantages to being a junior gold miner as opposed to a well-diversified mining company. On one hand, junior miners exploring purely/predominantly for gold enjoy a lower discount rate (i.e., lower cost of capital) due to lower asset beta, stand to capture the upside of the increase in gold price (if unhedged), can exercise downside protection with ease (by having to hedge exposure to one liquidly traded metal) and have a revenue stream which is somewhat inflation-protected. On the other hand, juniors have to rely solely on external sources of financing (which, as the last two years have demonstrated, can tighten rapidly), face the threat of drops in gold prices if unhedged and do not enjoy the diversification of exposure to a variety of metals which are not always perfectly correlated.

Industry insiders have suggested that the recent credit crunch has disproportionately affected junior gold miners' ability to draw on capital markets financing, an activity which is essential to their ongoing operations as per PDAC. "Few have been harder hit by the global

recession than the small miners and explorers that depend so much on external financing to survive until they can discover the mineral troves that can be sold on to bigger players" (Jordan, 2009, ¶ 2). Since the rock bottom of the crisis [defined *for purposes of this research* as the period commencing in August of 2008 with events leading up to Chapter 11 bankruptcy filing by Lehman Brothers on September 15, 2008 and lasting through present day] the number of public and private placements has shrunk considerably (aggregate Capital IQ data). According to Haywood Securities Mining Team (2008), "companies [were] faced with near-term financing requirements complicated by uncertain access to affordable equity given current capital market conditions" (p. 8) at that time.

Policies of fiscal easing put in place by major Western economies in an effort to overcome the recent credit crunch resulted in a gradually swelling monetary base chasing a steady supply of physical goods. This made inflation – if not immediately then in the near future – likely. Coupled with the weakening U.S. dollar, this boosted the outlook for the price of gold, the traditional physical haven for investors in time of inflation (Gold Stock Strategist, 2009, ¶ 8).

Thus it appeared that junior gold miners, as part of the broader gold market, found themselves in a favorable position to raise the financing. Furthermore, they stood to capture the premium – compared to the same peer group of companies in the past – that investors would now be willing to pay based on the expected increase in the value of the physical gold underground. An opinion by Money Morning Staff supported this viewpoint: "[I]nformed investors know that hard assets, and tangible natural resources, have always provided the best protection against the ravages of the U.S. Treasury's printing press" (2009, ¶ 30).

Increased inflationary pressures and positive gold price outlook also increased demand on the investor side, and with limited supply of established gold producers, explorers and pre-

producers that did not have access to capital markets in the past were increasingly able to raise financing. "Investors are courageously committing capital, especially in return for unsecured common shares, clearly expecting healthy returns in the coming years" (Money Morning Staff, 2009, ¶ 27).

Analysis of professional literature suggests the following levers via which capital raising may affect value of junior gold mining firms:

1) Certainty of Production–"[junior miners] with promise of near-term gold production..have the best shot at accessing capital" (Money Morning Staff, 2009, ¶ 20)

2) Time Management–miners believe time is of the essence given uncertainty of future commodity prices and time value of money

3) Gold Prices–current fiscal policy of major industrial nations makes inflation likely. In such environment, gold prices historically grow, and there is a sense of urgency to produce in order to take advantage of the trend

4) Asset Preservation–the ability to raise cash ensures that the company will not have to resort to the sale of some of its valuable assets to develop others

5) 'Chicken-or-Egg' phenomenon–while raising cash enables companies to move closer to production, the closer you are to production already, the easier it is to raise cash – thus, equity issuance is in effect the market's endorsement of pre-transaction viability

One more factor that is generally considered crucial to the value of a mining operation is the quality of management. If managers have a proven track record with other projects, the probability of their current undertaking being successful increases. While it is an industry standard to value gold explorers using NAV (Net Asset Value) of their reserves, recognized industry expert Dr. Victor Rudenno (2009) further suggests that "any increase in share price is not

so much a reflection of the additional reserves, but of management's ability to convert them into future earnings" (p. 284).

This industry review sets the stage for the investigation of what factors, if any, determine how the market puts value on equity issuance by junior gold miners. In its Junior Precious Metals Industry Comments, the Haywood Securities Mining Team (2008) succinctly describes projects that are sufficiently advanced to be in a first mover position 'when investor interest returns' as those which "are well funded, [have] seasoned management teams and attractive development stage projects" (p. 1). This study will attempt to analyze how features of an equity financing event such as dilution percentage, prior stock performance, warrant issuance, presence or absence of producing facilities and underwriters' domicile influence the magnitude of this effect.

II.   HYPOTHESIS

This study sets out to examine how factors such as dilution percentage, prior stock performance, warrant issuance, presence or absence of producing facilities and underwriters' domicile influence the market's valuation of junior gold mining companies upon announcement of equity issuance. Thus, the null hypothesis is that there is no statistically significant relationship between the change in the stock price (dependent variable) and each of the factors listed above (independent variables). This hypothesis will be tested via an empirical examination of the closing share price one day before and on the day of the announcement, and a multiple regression against the factors outlined above

III.   DATA SELECTION

III.1   SAMPLE SELECTION

Data in this sample was gathered from Capital IQ database over the course of the research using the following **Screening Criteria**

- Primary Industry Classification: 'Gold Ores'

- Market Capitalization: $100 - $800 million *as of latest screening date*

- Listing: publicly listed on Major US Exchanges, LSE, TSX, TSXV, JSE

- Transactions: **public** (Common Stock, ADR Common Stock, Preferred Stock, Convertible Preferred Stock) *and* **private** (Convertible Equity, Rule 144A, Individual Investors Participated, Bought Deal, Registered Direct Offering, Equity Line, Pre-IPO)

- Time Frame: transactions *announced and closed* between 8/1/2008 and 3/30/10

- Benchmark Index: ARC:GDX index Market Vectors ETF Trust - Gold Miners ETF is an exchange traded fund launched and managed by Van Eck Associates Corporation. It invests in the public equity markets across the globe. The fund invests in stocks of companies operating in the gold mining sector. It invests in stocks of companies across all market capitalizations with market capitalizations greater than $100 million. The fund replicates the Amex Gold Miners Index by investing in companies of that index in approximately the same proportion. Market Vectors ETF Trust - Gold Miners ETF was founded on May 16, 2006 and is domiciled in the United States (Source: Capital IQ).

III.2 SAMPLE

The sample for this study, compiled as per selection criteria above, includes firms which have *announced and closed* equity issuance transactions, both public and private, between August 1, 2008 and March 30, 2010. The sample has been further divided into two sub-samples:

1. Firms (33 total, market cap in the $101.2 - $759.1 mm range *as of transaction date*) which have entered into public transactions (42 total, total transaction value in the $2.1 - $135.8 range)

Announced/Initial Filing Date (Including Bids and Letters of Intent)	Closed/Registration Effective Date	Target/Issuer	Exchange:Ticker	Closing SP D -1	Closing SP D	SP Change	ARCA:GDX D -1	ARCA:GDX D	GDX Change	Relative SP Change	Total Trans Value	Market Cap	Dilution (Trans Value/MarCap)	LTM Stock Return	LTM ARCA:GDX Return	Excess LTM SP Return	Warrants (Y/N)	Revenues on Issuance (Y/N)	Lead Underwriter Canadian
02/17/2010	02/26/2010	OceanaGold Corporation	ASX:OGC	2.10	2.19	4.25%	44.91	44.71	-0.45%	4.70%	52.69	456.7	11.54%	468.12%	21.38%	446.74%	0	1	1
01/28/2010	02/11/2010	B2gold Corporation	TSX:BTO	1.24	1.19	-4.19%	42.77	42.17	-1.40%	-2.79%	23.7	419.0	5.66%	141.24%	30.68%	110.57%	0	1	1
01/14/2010	01/29/2010	Brett Resources Inc.	TSXV:BBR	2.14	2.28	6.76%	48.86	48.60	-0.53%	7.29%	24.47	208.9	11.71%	382.59%	73.26%	309.33%	0	0	1
01/13/2010	01/26/2010	Premier Gold Mines Limited	TSX:PG	4.04	3.89	-3.71%	48.35	48.86	1.05%	-4.76%	30.17	362.2	8.33%	200.59%	63.79%	136.80%	0	0	1
01/11/2010	01/19/2010	Guyana Goldfields Inc.	TSX:GUY	7.93	7.85	-0.91%	49.84	50.17	0.66%	-1.57%	67.34	419.5	16.05%	378.49%	72.16%	306.33%	0	0	0
12/03/2009	12/10/2009	Golden Star Resources, Ltd.	AMEX:GSS	4.23	4.19	-0.95%	54.78	53.53	-2.28%	1.34%	75.0	759.1	9.88%	713.46%	127.68%	585.78%	0	1	1
11/20/2009	12/03/2009	Avion Gold Corporation	TSXV:AVR	0.44	0.39	-12.19%	51.10	50.82	-0.55%	-11.56%	19.01	176.7	10.76%	1317.07%	180.77%	1136.30%	0	0	1
11/17/2009	12/03/2009	Keegan Resources Inc.	TSX:KGN	5.98	5.91	-1.07%	51.34	51.53	0.37%	-1.44%	34.2	226.0	15.13%	952.54%	161.14%	791.40%	0	0	1
11/13/2009	12/18/2009	Allied Gold Ltd.	ASX:ALD	0.39	0.38	-2.77%	48.44	49.78	2.77%	-5.54%	135.78	286.6	47.38%	171.79%	123.64%	48.15%	0	1	1
11/11/2009	12/16/2009	Regis Resources Limited	ASX:RRL	0.48	0.56	16.79%	49.66	49.90	0.48%	16.31%	23.55	270.2	8.72%	814.41%	129.49%	684.92%	0	0	0
11/11/2009	12/10/2009	ST Barbara Ltd.	ASX:SBM	0.33	0.33	0.00%	49.66	49.90	0.48%	-0.48%	113.87	477.8	23.83%	122.42%	129.49%	-7.07%	0	1	0
11/09/2009	11/19/2009	Exeter Resource Corporation	TSX:XRC	5.75	5.95	3.35%	47.62	49.28	3.49%	-0.14%	46.9	545.0	8.61%	255.32%	105.70%	149.62%	0	0	1
11/03/2009	11/16/2009	Andina Minerals, Inc.	TSXV:ADM	1.68	1.81	8.06%	42.88	46.18	7.70%	0.36%	23.91	161.0	14.85%	127.70%	104.09%	23.61%	1	0	1
10/29/2009	12/04/2009	Troy Resources NL	ASX:TRY	2.22	2.21	-0.70%	41.87	43.80	4.61%	-5.31%	22.79	169.5	13.45%	232.55%	100.72%	131.83%	0	1	0
09/30/2009	10/15/2009	Colossus Minerals Inc.	TSX:CSI	4.45	5.49	23.19%	44.46	45.29	1.87%	21.32%	61.36	311.5	19.70%	320.92%	31.58%	289.34%	0	0	1
09/25/2009	10/30/2009	Apex Minerals NL	ASX:AXM	0.08	0.05	-35.31%	43.74	43.07	-1.53%	-33.78%	97.98	102.2	95.87%	-75.62%	20.16%	-95.78%	1	1	0
09/17/2009	09/21/2009	Minefinders Corp. Ltd.	TSX:MFL	10.61	10.05	-5.30%	48.00	47.78	-0.46%	-4.84%	61.09	680.4	8.98%	71.37%	40.76%	30.61%	0	1	1
09/08/2009	09/15/2009	Vista Gold Corp.	AMEX:VGZ	2.42	2.41	-0.41%	45.02	45.11	0.20%	-0.61%	19.8	101.2	19.57%	-11.68%	45.51%	-57.19%	0	0	0
08/31/2009	09/22/2009	Greystar Resources Ltd.	TSX:GSL	3.63	3.50	-3.58%	40.18	39.51	-1.67%	-1.91%	51.46	368.4	13.97%	89.10%	13.99%	75.11%	1	0	1
07/23/2009	08/06/2009	Romarco Minerals Inc.	TSXV:R	0.79	0.81	2.59%	39.77	39.96	0.48%	2.11%	37.22	538.9	6.91%	369.65%	-10.77%	380.42%	0	0	1
06/29/2009	07/15/2009	B2gold Corporation	TSX:BTO	0.69	0.66	-4.20%	39.20	39.15	-0.13%	-4.07%	22.35	340.9	6.56%	-38.44%	-19.32%	-19.12%	0	1	1
06/17/2009	07/03/2009	Brett Resources Inc.	TSXV:BBR	0.67	0.61	-8.58%	38.37	38.23	-0.36%	-8.22%	10.51	183.7	5.72%	-11.06%	-12.87%	1.81%	1	0	1
06/16/2009	06/19/2009	Banro Corporation	TSX:BAA	2.46	2.30	-6.69%	37.97	38.37	1.05%	-7.74%	88.14	191.6	46.00%	-65.48%	-13.01%	-52.47%	0	0	1
05/26/2009	06/08/2009	Andina Minerals, Inc.	TSXV:ADM	1.60	1.44	-9.84%	42.05	41.84	-0.50%	-9.34%	12.01	161.0	7.46%	-59.37%	-9.45%	-49.91%	0	0	1
05/20/2009	05/28/2009	Aquiline Resources Inc.	TSX:AQI	2.18	2.36	8.53%	38.43	40.47	5.31%	3.22%	14.57	549.0	2.65%	-74.18%	-21.12%	-53.06%	0	0	1
05/18/2009	06/23/2009	Apex Minerals NL	ASX:AXM	0.19	0.15	-21.97%	37.65	37.49	-0.42%	-21.55%	11.19	102.2	10.95%	-74.77%	-20.84%	-53.94%	0	1	0
05/15/2009	06/22/2009	Norseman Gold Plc.	AIM:NGL	0.39	0.41	3.32%	38.05	37.65	-1.05%	4.38%	7.12	146.1	4.87%	-32.37%	-17.66%	-14.71%	0	1	0
05/14/2009	06/17/2009	Citigold Corporation Limited	ASX:CTO	0.13	0.12	-6.15%	37.94	38.05	0.29%	-6.44%	7.56	102.0	7.41%	-53.94%	-15.09%	-38.86%	0	1	0
05/06/2009	06/23/2009	Perseus Mining Ltd.	ASX:PRU	0.65	0.64	-0.84%	34.78	36.86	5.97%	-6.82%	13.34	519.6	2.57%	-43.90%	-23.04%	-20.87%	0	0	0
05/04/2009	05/20/2009	Keegan Resources Inc.	TSX:KGN	2.22	2.15	-3.04%	33.04	35.03	6.02%	-9.06%	14.71	226.0	6.51%	-48.88%	-25.08%	-23.80%	0	0	1
04/29/2009	05/12/2009	US Gold Corporation	AMEX:UXG	2.09	2.02	-3.35%	33.11	33.89	2.36%	-5.71%	44.0	286.4	15.36%	3.98%	-22.15%	26.13%	0	0	0
04/08/2009	04/21/2009	Aurizon Mines Ltd.	TSX:ARZ	4.56	4.15	-9.13%	33.43	33.53	0.30%	-9.43%	40.35	623.4	6.47%	-4.27%	-30.97%	26.71%	0	1	1
02/24/2009	04/28/2009	Focus Minerals Limited	ASX:FML	0.02	0.02	-10.19%	36.47	33.50	-8.14%	-2.05%	2.12	173.2	1.22%	-66.67%	-28.40%	-38.27%	0	1	0
02/23/2009	03/10/2009	Rusoro Mining Ltd.	TSXV:RML	0.56	0.56	0.77%	37.03	36.47	-1.51%	2.28%	78.12	221.9	35.21%	-65.35%	-27.30%	-38.05%	0	1	1
02/23/2009	03/05/2009	Great Basin Gold Ltd.	AMEX:GBG	1.77	1.48	-16.38%	37.03	36.47	-1.51%	-14.87%	100.83	600.8	16.78%	-46.04%	-27.30%	-18.73%	1	1	1
02/11/2009	02/19/2009	Exeter Resource Corporation	TSX:XRC	2.24	2.31	3.02%	34.00	36.33	6.85%	-3.83%	20.05	545.0	3.68%	-47.35%	-27.49%	-19.86%	0	0	1
12/02/2008	12/04/2008	Minefinders Corp. Ltd.	TSX:MFL	3.62	3.20	-11.62%	22.50	24.69	9.73%	-21.35%	31.73	680.4	4.66%	-70.81%	-51.94%	-18.87%	1	0	1
11/18/2008	01/02/2009	Resolute Mining Ltd.	ASX:RSG	0.33	0.33	0.00%	19.66	19.56	-0.51%	0.51%	2.12	345.7	0.61%	-79.37%	-56.74%	-22.62%	0	1	0
11/10/2008	12/09/2008	Crew Gold Corp.	TSX:CRU	0.15	0.13	-16.96%	21.75	23.15	6.44%	-23.40%	14.42	244.2	5.90%	-90.69%	-53.42%	-37.27%	0	1	0
10/31/2008	12/08/2008	Catalpa Resources Limited	ASX:CAH	0.23	0.23	0.00%	21.70	20.95	-3.46%	3.46%	2.3	186.8	1.23%	-80.40%	-55.55%	-24.84%	1	0	0
09/03/2008	02/12/2009	Banro Corporation	TSX:BAA	3.21	2.92	-9.17%	35.25	33.57	-4.77%	-4.40%	14.0	191.6	7.31%	-67.34%	-8.82%	-58.52%	0	0	1
09/02/2008	09/11/2008	Banro Corporation	TSX:BAA	3.47	3.21	-7.38%	37.64	35.25	-6.35%	-1.03%	19.25	191.6	10.05%	-64.74%	-2.64%	-62.10%	1	0	1
Mean						-3.23%			0.74%	-3.97%									
Median						-2.91%			0.24%	-3.31%									

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2. Firms (28 total, market cap in the $6.8 - $831.1 mm range *as of transaction date*) which have entered into private transactions (59 total, total transaction value in the $0.5 - $80.5 range)

Announced/Initial Filing Date (Including Bids and Letters of Intent)	Closed/Registration Effective Date	Target/Issuer	Exchange:Ticker	Closing SP D -1	Closing SP D	SP Change	ARCA:GDX D -1	ARCA:GDX D	GDX Change	Relative SP Change	Total Trans Value	Market Cap	Dilution (Trans Value/MarCap)	LTM Stock Return	LTM ARCA:GDX Return	Excess LTM SP Return	Warrants (Y/N)	Revenues on Issuance (Y/N)	Lead Underwriter Canadian
03/16/2010	03/18/2010	Catalpa Resources Limited	ASX:CAH	1.37	1.32	-3.84%	44.94	46.12	2.63%	-6.46%	9.22	198.4	4.65%	48.85%	38.02%	10.83%	0	1	0
03/01/2010	03/03/2010	Norton Gold Fields Limited	ASX:NGF	0.16	0.16	0.00%	43.89	44.64	1.71%	-1.71%	18.13	86.7	20.90%	16.67%	41.17%	-24.50%	0	1	0
02/18/2010	03/04/2010	OceanaGold Corporation	ASX:OGC	2.20	2.19	-0.28%	44.71	45.06	0.78%	-1.07%	21.49	408.6	5.26%	284.25%	19.64%	264.61%	0	1	0
02/01/2010	02/25/2010	Rainy River Resources Ltd.	TSXV:RR	4.73	4.84	2.25%	40.72	42.94	5.45%	-3.20%	51.56	271.0	19.03%	213.66%	23.77%	189.89%	1	0	1
01/19/2010	02/05/2010	CGA Mining Limited	ASX:CGX	2.17	2.37	9.33%	47.42	47.69	0.57%	8.76%	80.45	622.1	12.93%	79.29%	53.56%	25.73%	0	1	1
01/14/2010	01/14/2010	Carrick Gold Ltd.	ASX:CRK	1.07	1.06	-0.47%	48.86	48.60	-0.53%	0.06%	16.76	129.6	12.93%	59.72%	73.26%	-13.54%	0	0	0
01/13/2010	02/04/2010	Kirkland Lake Gold Inc.	TSX:KGI	7.98	8.46	5.97%	48.35	48.86	1.05%	4.92%	29.87	505.9	5.90%	123.82%	63.79%	60.03%	1	1	1
12/14/2009	12/30/2009	Claude Resources, Inc.	TSX:CRJ	1.29	1.21	-6.31%	47.82	48.47	1.35%	-7.66%	13.08	152.7	8.56%	368.97%	57.61%	311.36%	1	1	1
12/09/2009	12/22/2009	Brett Resources Inc.	TSXV:BBR	1.65	1.68	1.63%	47.75	48.79	2.18%	-0.55%	4.98	142.6	3.49%	234.62%	87.92%	146.70%	0	0	0
11/10/2009	11/10/2009	Crocodile Gold Corp.	TSX:CRK	1.28	1.13	-11.75%	49.28	49.66	0.78%	-12.53%	0.51	175.1	0.29%	0.00%	112.87%	-112.87%	1	0	0
11/06/2009	12/22/2009	Tanzanian Royalty Exploration	TSX:TNX	2.97	2.99	0.64%	46.72	47.62	1.93%	-1.28%	2.97	269.2	1.10%	17.91%	113.04%	-95.13%	0	0	0
10/29/2009	11/24/2009	Victoria Gold Corp.	TSXV:VIT	0.60	0.64	6.00%	41.87	43.80	4.61%	1.39%	14.15	117.7	12.02%	276.47%	100.72%	175.75%	1	0	1
10/26/2009	11/10/2009	Perseus Mining Ltd.	ASX:PRU	1.60	1.46	-8.64%	46.69	44.69	-4.28%	-4.36%	54.22	486.0	11.16%	307.06%	185.22%	121.84%	0	1	0
10/23/2009	11/16/2009	Claude Resources, Inc.	TSX:CRJ	0.69	0.82	19.05%	46.99	46.69	-0.64%	19.69%	5.07	76.8	6.61%	152.63%	169.90%	-17.27%	1	1	0
10/21/2009	11/03/2009	Dynasty Metals & Mining Inc.	TSX:DMM	4.16	4.04	-2.92%	47.50	47.39	-0.23%	-2.69%	5.6	148.3	3.78%	248.44%	116.99%	131.45%	0	0	1
10/19/2009	01/07/2010	Norton Gold Fields Limited	ASX:NGF	0.29	0.34	19.09%	48.38	48.53	0.31%	18.78%	37.17	121.6	30.57%	162.50%	100.00%	62.50%	0	1	0
10/15/2009	10/30/2009	Ventana Gold Corp.	TSX:VEN	9.41	10.04	6.70%	49.13	48.16	-1.97%	8.68%	37.05	831.1	4.46%	0.00%	101.68%	-101.68%	0	1	0
10/12/2009	10/27/2009	Tanzanian Royalty Exploration	TSX:TNX	3.03	3.09	1.93%	48.29	48.28	-0.02%	1.95%	0.94	271.6	0.35%	23.85%	80.19%	-56.34%	0	0	0
10/07/2009	11/02/2009	Rainy River Resources Ltd.	TSXV:RR	2.18	2.12	-2.44%	47.60	47.90	0.63%	-3.07%	7.68	122.2	6.29%	76.92%	73.85%	3.07%	0	0	1
10/02/2009	10/14/2009	Silver Lake Resources Limited	ASX:SLR	0.80	0.77	-4.15%	43.06	42.76	-0.70%	-3.45%	16.73	124.3	13.46%	319.05%	48.74%	270.31%	0	1	0
09/21/2009	10/30/2009	CGA Mining Limited	ASX:CGX	1.79	1.73	-3.44%	45.92	45.15	-1.68%	-1.76%	23.15	500.5	4.63%	60.94%	20.56%	40.38%	0	1	1
09/01/2009	09/30/2009	Queenston Mining Inc.	TSX:QMI	4.91	4.79	-2.39%	39.51	38.79	-1.82%	-0.57%	15.83	282.7	5.60%	138.46%	12.09%	126.37%	1	0	1
08/18/2009	09/10/2009	Kirkland Lake Gold Inc.	TSX:KGI	8.02	7.97	-0.57%	37.30	37.87	1.53%	-2.09%	34.32	469.5	7.31%	21.43%	6.24%	15.19%	1	1	1
07/21/2009	07/27/2009	OceanaGold Corporation	ASX:OGC	0.99	0.98	-1.46%	40.23	39.74	-1.22%	-0.24%	19.93	159.4	12.50%	46.34%	-17.38%	63.72%	1	1	0
07/10/2009	08/26/2009	International Tow er Hill Mines Ltd	TSX:ITH	2.87	2.57	-10.62%	35.31	35.14	-0.48%	-10.14%	2.97	139.1	2.14%	104.55%	-24.34%	128.89%	0	0	0
06/29/2009	08/06/2009	Victoria Gold Corp.	TSXV:VIT	0.36	0.34	-5.26%	39.20	39.15	-0.13%	-5.14%	1.77	51.8	3.42%	-40.71%	-19.32%	-21.39%	0	0	1
06/26/2009	07/13/2009	Apollo Gold Corp.	TSX:APG	0.43	0.43	-0.40%	39.99	39.20	-1.98%	1.58%	11.22	99.9	11.23%	-13.16%	-13.85%	0.69%	0	1	0
05/26/2009	06/12/2009	CGA Mining Limited	ASX:CGX	1.37	1.30	-5.16%	42.05	41.84	-0.50%	-4.66%	17.91	361.8	4.95%	-5.91%	-9.45%	3.54%	0	1	1
05/18/2009	05/22/2009	Apex Minerals NL	ASX:AXM	0.20	0.15	-25.90%	37.65	37.49	-0.42%	-25.48%	10.91	90.9	12.00%	-68.75%	-20.84%	-47.91%	0	1	0
05/06/2009	06/17/2009	Perseus Mining Ltd.	ASX:PRU	0.70	0.64	-7.97%	34.78	36.86	5.97%	-13.95%	46.05	143.5	32.09%	-27.87%	-23.04%	-4.83%	0	1	1
05/05/2009	05/29/2009	Tanzanian Royalty Exploration	TSX:TNX	2.98	2.97	-0.33%	35.03	34.78	-0.71%	0.38%	0.91	286.3	0.32%	-31.31%	-20.57%	-10.74%	0	0	0
04/10/2009	04/15/2009	Tanzanian Royalty Exploration	TSX:TNX	4.06	3.40	-16.21%	33.04	33.77	2.21%	-18.42%	1.24	362.2	0.34%	-16.24%	-32.61%	16.37%	0	0	0
03/31/2009	05/12/2009	Catalpa Resources Limited	ASX:CAH	0.62	0.62	-0.85%	36.40	36.88	1.32%	-2.17%	24.05	32.3	74.50%	37.29%	-23.69%	60.98%	0	1	0
03/30/2009	04/30/2009	Ventana Gold Corp.	TSX:VEN	1.26	1.25	-0.76%	37.00	36.40	-1.62%	0.86%	5.06	94.9	5.33%	0.00%	-22.43%	22.43%	1	0	0
03/24/2009	03/24/2009	Ramelius Resources Ltd.	ASX:RMS	0.41	0.44	7.21%	37.71	36.86	-2.25%	9.47%	9.42	75.6	12.46%	-38.95%	-19.71%	-19.24%	0	1	0
03/03/2009	03/03/2009	Norseman Gold Plc.	AIM:NGL	0.14	0.12	-15.31%	31.09	31.68	1.90%	-17.21%	7.02	11.7	60.15%	-75.52%	-43.08%	-32.44%	0	1	0
02/26/2009	03/05/2009	Medusa Mining Ltd.	ASX:MML	0.87	0.83	-5.05%	32.90	33.50	1.82%	-6.88%	15.67	127.0	12.34%	0.74%	-38.11%	38.85%	0	1	0
02/24/2009	04/06/2009	Focus Minerals Limited	ASX:FML	0.02	0.02	-10.19%	36.47	33.50	-8.14%	-2.05%	17.76	23.9	74.31%	-51.79%	-28.40%	-23.39%	0	1	0
02/24/2009	02/24/2009	Allied Gold Ltd.	ASX:ALD	0.33	0.32	-3.99%	36.47	33.50	-8.14%	4.15%	19.89	136.6	14.56%	-25.90%	-28.40%	2.50%	0	1	0
02/20/2009	03/04/2009	Queenston Mining Inc.	TSX:QMI	3.08	3.04	-1.27%	35.64	37.03	3.90%	-5.17%	14.07	162.1	8.68%	12.57%	-29.83%	42.40%	1	0	1
02/19/2009	03/16/2009	Victoria Gold Corp.	TSXV:VIT	0.41	0.37	-11.38%	37.37	35.64	-4.63%	-6.75%	8.01	54.9	14.58%	-53.57%	-26.65%	-26.92%	1	0	1
02/12/2009	03/11/2009	Ventana Gold Corp.	TSX:VEN	0.50	0.68	36.69%	49.13	48.16	-1.97%	38.66%	2.61	33.1	7.89%	0.00%	2.87%	-2.87%	1	0	0
02/12/2009	03/03/2009	Romarco Minerals Inc.	TSXV:R	0.29	0.28	-3.22%	36.33	36.48	0.41%	-3.63%	21.17	58.9	35.97%	123.53%	-23.93%	147.46%	1	1	0
02/12/2009	03/04/2009	International Tow er Hill Mines Ltd	TSX:ITH	2.31	2.37	2.41%	36.33	36.48	0.41%	2.00%	8.21	102.2	8.03%	37.21%	-23.93%	61.14%	1	0	0
02/10/2009	02/19/2009	Banro Corporation	TSX:BAA	1.52	1.53	0.78%	34.37	34.00	-1.08%	1.85%	14.0	79.8	17.55%	-80.27%	-29.35%	-50.92%	0	0	0
02/03/2009	03/05/2009	Tanzanian Royalty Exploration	TSX:TNX	3.75	3.89	3.73%	32.90	33.36	1.40%	2.33%	0.78	320.5	0.24%	-19.83%	-31.67%	11.84%	0	0	0
02/02/2009	02/17/2009	Kirkland Lake Gold Inc.	TSX:KGI	4.32	4.14	-4.27%	34.23	32.90	-3.89%	-0.39%	10.84	240.6	4.51%	-46.73%	-28.91%	-17.82%	1	1	0
01/30/2009	02/19/2009	Dynasty Metals & Mining Inc.	TSX:DMM	3.39	3.35	-1.10%	34.40	34.23	-0.49%	-0.61%	7.96	111.5	7.14%	-45.73%	-31.68%	-14.05%	1	0	0
01/27/2009	02/26/2009	Luna Gold Corp.	TSXV:LGC	0.13	0.13	-0.64%	33.97	33.47	-1.47%	0.83%	24.92	10.8	230.10%	-87.40%	-33.67%	-53.73%	0	0	0
01/27/2009	03/11/2009	Apex Minerals NL	ASX:AXM	0.25	0.25	0.00%	33.97	33.47	-1.47%	1.47%	12.7	96.2	13.20%	-63.46%	-33.67%	-29.79%	0	1	0
01/27/2009	02/10/2009	CGA Mining Limited	ASX:CGX	0.94	0.94	0.00%	33.97	33.47	-1.47%	1.47%	20.37	224.7	9.06%	2.86%	-33.67%	36.53%	0	1	0
01/21/2009	01/28/2009	Perseus Mining Ltd.	ASX:PRU	0.37	0.34	-6.48%	30.88	31.65	2.49%	-8.98%	5.7	64.7	8.81%	-36.78%	-37.62%	0.84%	0	1	0
12/01/2008	12/18/2008	Victoria Gold Corp.	TSXV:VIT	0.17	0.17	-1.92%	26.57	22.50	-15.32%	13.40%	3.57	16.8	21.20%	-70.55%	-43.25%	-27.30%	1	0	1
10/31/2008	11/17/2008	Luna Gold Corp.	TSXV:LGC	0.11	0.10	-10.31%	21.70	20.95	-3.46%	-6.85%	2.0	6.8	29.28%	-84.66%	-55.55%	-29.11%	1	0	0
10/29/2008	12/09/2008	Tanzanian Royalty Exploration	TSX:TNX	1.93	2.36	21.99%	18.69	20.86	11.61%	10.38%	1.57	174.8	0.90%	-56.97%	-61.72%	4.75%	0	0	0
10/01/2008	10/10/2008	Tanzanian Royalty Exploration	TSX:TNX	2.69	2.62	-2.41%	33.79	33.77	-0.06%	-2.35%	0.84	210.6	0.40%	-48.74%	-22.85%	-25.89%	0	0	0
09/29/2008	09/30/2008	Apex Minerals NL	ASX:AXM	0.33	0.34	2.47%	35.83	34.00	-5.11%	7.58%	46.19	127.9	36.11%	-62.44%	-7.32%	-55.12%	1	1	0
08/06/2008	08/21/2008	Apollo Gold Corp.	TSX:APG	0.40	0.39	-2.85%	38.59	39.21	1.61%	-4.45%	8.12	81.2	10.00%	-7.69%	0.03%	-7.72%	0	1	0
08/05/2008	08/07/2008	Allied Gold Ltd.	ASX:ALD	0.28	0.30	7.83%	40.85	38.59	-5.53%	13.36%	9.58	106.2	9.02%	-31.61%	5.45%	-37.06%	0	1	0
Mean						-0.68%			-0.45%	-0.23%						22.62%			

IV.   RESULTS

According to Rudenno (2009), "on a day-to-day basis such issues as commodity prices and exploration announcements will influence price movements" (p. 283). As this is a compelling argument both from the theoretical and the practical viewpoints: a) ARCA:GDX index is used for benchmarking to control for fluctuations in the price of gold companies; b) firms with exploration announcements on the date of equity issuance announcement are not included in the sample.

Public Transactions

When examining public transactions over the specified time period, we observe an average drop of 3.23% in the share price of the issuer; when we benchmark share price movement against the ARCA:GDX movement on the same date, this drop is negative 3.97%. The considerable range of benchmarked share price movement of between negative 33.78% and positive 21.32% suggests that the fact of issuance in itself is not a predictor of how the share price will react and that other factors need to be examined for correlation with share price fluctuation.

The null hypothesis posits that there is no statistically significant relationship between the change in share price upon equity issuance announcement and such factors as dilution percentage (defined as Total Transaction Volume/Market Cap on day of Transaction), prior stock performance (defined as LTM returns over benchmark, ARCA:GDX), warrant issuance (Y/N), presence or absence of producing facilities (Y/N) and underwriters' domicile (Canada/Other). Multiple regression method was used to test this hypothesis.

Regression Analysis: Relative SP Change versus Dilution

The regression equation is

Relative SP Change = - 0.0115 - 0.204 Dilution

Predictor	Coef	SE Coef	T	P
Constant	-0.01149	0.01852	-0.62	0.539
Dilution	-0.20431	0.08652	-2.36	0.023

S = 0.0917208   R-Sq = 12.2%   R-Sq(adj) = 10.0%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.046914	0.046914	5.58	0.023
Residual Error	40	0.336508	0.008413		
Total	41	0.383422			

Unusual Observations

| Obs	Dilution	Relative SP Change	Fit	SE Fit	Residual	St Resid
10	0.087	0.1631	-0.0293	0.0148	0.1924	2.13R
15	0.197	0.2132	-0.0517	0.0150	0.2650	2.93R
16	0.959	-0.3378	-0.2074	0.0724	-0.1305	-2.32RX
26	0.109	-0.2155	-0.0339	0.0144	-0.1816	-2.00R
37	0.047	-0.2135	-0.0210	0.0162	-0.1925	-2.13R
39	0.059	-0.2340	-0.0236	0.0157	-0.2104	-2.33R

R denotes an observation with a large standardized residual.

X denotes an observation whose X value gives it large leverage.

Scatterplot of Relative SP Change vs Dilution
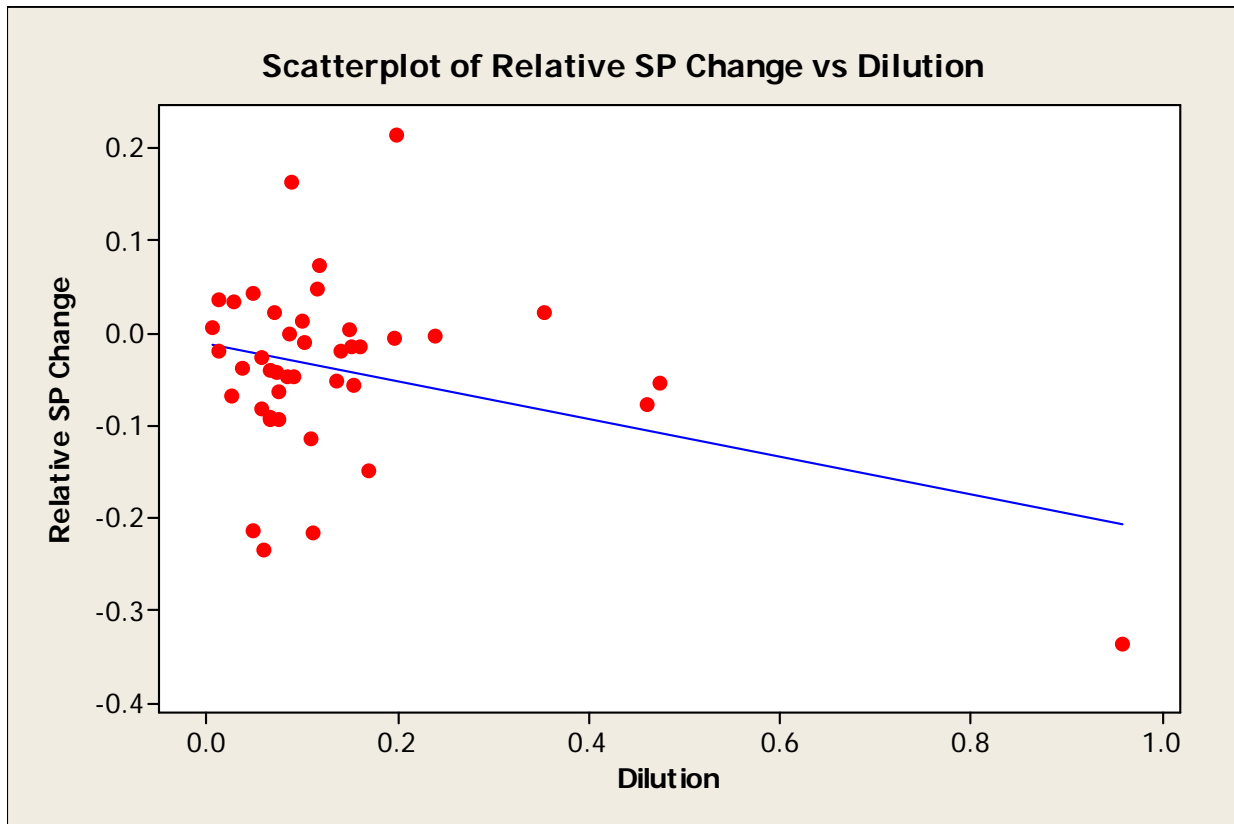
T statistic value in this regression indicates that there is a significant negative correlation between shareholder base dilution precipitated by the transaction and the post-announcement adjusted share price movement; the coefficient suggests that for each percentage point in shareholder base dilution there is a 0.2 percentage point drop in share price (adjusted for corresponding index movement). This inverse relationship is what we would reasonably expect from the point of view of a shareholder whose holdings in the company get diluted. However, the adjusted R-sq of 10.0% implies that only 10% of the share price movement is explained by the dilution, with 90% attributable to other factors.

Regression Analysis: Relative SP Change versus Dilution, Excess LTM SP Return

The regression equation is

Relative SP Change = - 0.0254 – 0.188 Dilution + 0.0101 Excess LTM SP Return

Predictor	Coef	SE Coef	T	P
Constant	-0.02544	0.01931	-1.32	0.195
Dilution	-0.18833	0.08409	-2.24	0.031
Excess LTM SP Return	0.010141	0.005229	1.94	0.060

S = 0.0887107   R-Sq = 20.0%   R-Sq(adj) = 15.8%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	2	0.076507	0.038254	4.86	0.013
Residual Error	39	0.306914	0.007870		
Total	41	0.383422			

Source	DF	Seq SS
Dilution	1	0.046914
Excess LTM SP Return	1	0.029594

Unusual Observations

Obs	Dilution	Relative SP Change	Fit	SE Fit	Residual	St Resid
7	0.108	-0.1156	0.0695	0.0549	-0.1851	-2.66RX
15	0.197	0.2132	-0.0332	0.0174	0.2464	2.83R
16	0.959	-0.3378	-0.2157	0.0702	-0.1221	-2.25RX
37	0.047	-0.2135	-0.0361	0.0175	-0.1774	-2.04R
39	0.059	-0.2340	-0.0403	0.0175	-0.1936	-2.23R

R denotes an observation with a large standardized residual.

X denotes an observation whose X value gives it large leverage.

T statistic values in this regression indicates that–while there is a significant negative correlation between shareholder base dilution precipitated by the transaction and the post-

announcement adjusted share price movement–the correlation between share price movement and historical stock performance fails to clear the standard of significance: t statistic of 1.94 (<2.0).

An examination of the relationship between Relative SP Change and Excess LTM Return suggests that it may not be linear, as illustrated by the graph below, which further corroborates the lack of statistical significance of the latter independent variable.
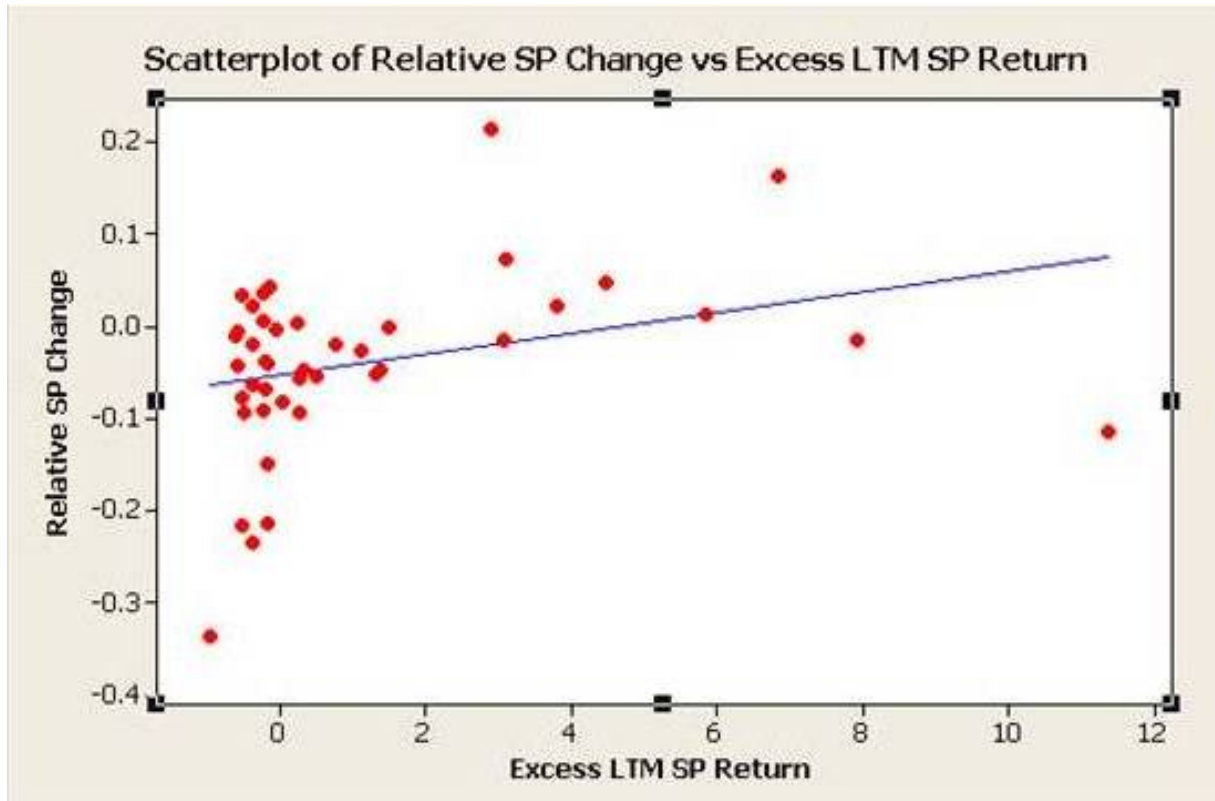
Regression Analysis: Relative SP Change versus Dilution, Excess LTM SP Return, Warrants

```
The regression equation is
Relative SP Change = - 0.0182 - 0.171 Dilution + 0.00872 Excess LTM SP Return
                   - 0.0424 Warrants
```

```
Predictor                   Coef    SE Coef      T       P
Constant                 -0.01815   0.02021   -0.90   0.375
Dilution                 -0.17070   0.08505   -2.01   0.052
Excess LTM SP Return     0.008721   0.005346   1.63   0.111
Warrants                 -0.04241   0.03633   -1.17   0.250


S = 0.0883013   R-Sq = 22.7%   R-Sq(adj) = 16.6%
Analysis of Variance
Source           DF        SS         MS       F       P
Regression        3   0.087131   0.029044   3.72   0.019
Residual Error   38   0.296291   0.007797
Total            41   0.383422


Source                  DF     Seq SS
Dilution                 1   0.046914
Excess LTM SP Return     1   0.029594
Warrants                 1   0.010624


Unusual Observations

                  Relative
Obs  Dilution  SP Change     Fit   SE Fit   Residual  St Resid
  7    0.108    -0.1156    0.0626   0.0550   -0.1782    -2.58RX
 15    0.197     0.2132   -0.0265   0.0182    0.2398     2.78R
 16    0.959    -0.3378   -0.2326   0.0713   -0.1052    -2.02RX
 26    0.109    -0.2155   -0.0415   0.0186   -0.1739    -2.01R
 39    0.059    -0.2340   -0.0315   0.0190   -0.2025    -2.35R
R denotes an observation with a large standardized residual.
X denotes an observation whose X value gives it large leverage.
```

T statistic values in this regression indicates that while there is a significant negative

correlation between shareholder base dilution precipitated by the transaction and the post-

announcement adjusted share price movement, the factor of presence of warrants fails to clear the standard of significance, with a t statistic of -1.17 (<2.0).

The three regressions above pass the multicollinearity test as we observe

1. No significant change in regression coefficients as independent variables are added or removed

2. T-statistics in line with F-scores

In summary, although adding independent variables such as prior stock performance and presence of warrants increases the R-sq of our regression, these independent variables do not have a statistically significant relationship with benchmarked share price performance on the day of announcement as indicated by the respective t statistic values. Although the t statistic value was significant for dilution as an independent variable, the R-sq of 10.0% does not allow us to reject the H_0 that there is no statistically significant relationship between share price performance on announcement date and any of the three predictors examined above.

It is also important to note that the following potential predictors of share price performance on announcement date were examined

- Producing v Non-Producing firms (using respective dummy variables of 1 and 0)

- Canadian v Non-Canadian underwriters (using respective dummy variables of 1 and 0)

No correlation between Excess LTM Return as Independent Variable and Relative SP Change as dependent variable was found as indicated by individual respective regressions yielding R-sq values of 0.0% and 0.0%. Thus, H_0 hypotheses cannot be rejected for any of these factors.

Private Transactions

When examining private transactions over the specified time period, we observe an average drop of 0.68% in the share price of the issuer; when we benchmark share price movement against the ARCA:GDX movement on the same date, this drop is 0.23%. The considerable range of benchmarked share price movement of negative 25.48% to positive 38.66% suggests that the fact of issuance in itself is not a predictor of how the share price will react and that other factors need to be examined for correlation with share price fluctuation.

The null hypothesis posits that there is no statistically significant relationship between the change in share price upon equity issuance announcement and such factors as dilution percentage, prior stock performance, warrant issuance, presence or absence of producing facilities and underwriters' domicile. Multiple regression method was used to test this. When each one of the proposed predictors was examined against the dependent variable (share price change) individually, R-sq of 0.0% was obtained in each case. This led to the conclusion that H_0 for private issuances cannot be rejected based on the data set at hand.

The examination of the relationship between share price change on private issuance and dilution is enclosed below for illustrative purposes.

Regression Analysis: Relative SP Change versus Dilution

```
The regression equation is
Relative SP Change = - 0.0028 - 0.0073 Dilution


Predictor      Coef  SE Coef       T       P
Constant   -0.00282  0.01423   -0.20   0.844
Dilution   -0.00728  0.03920   -0.19   0.853


S = 0.0965167   R-Sq = 0.1%   R-Sq(adj) = 0.0%
```

```
Analysis of Variance

Source           DF        SS        MS      F      P

Regression        1  0.000321  0.000321   0.03  0.853

Residual Error   57  0.530982  0.009315

Total            58  0.531304


Unusual Observations

                  Relative

Obs  Dilution  SP Change      Fit  SE Fit  Residual  St Resid

 14      0.07     0.1969  -0.0033  0.0132    0.2002     2.09R

 16      0.31     0.1878  -0.0050  0.0136    0.1929     2.02R

 29      0.12    -0.2548  -0.0037  0.0127   -0.2511    -2.62R

 44      0.08     0.3866  -0.0034  0.0131    0.3900     4.08R

 51      2.30     0.0083  -0.0196  0.0844    0.0279     0.60 X

R denotes an observation with a large standardized residual.
```
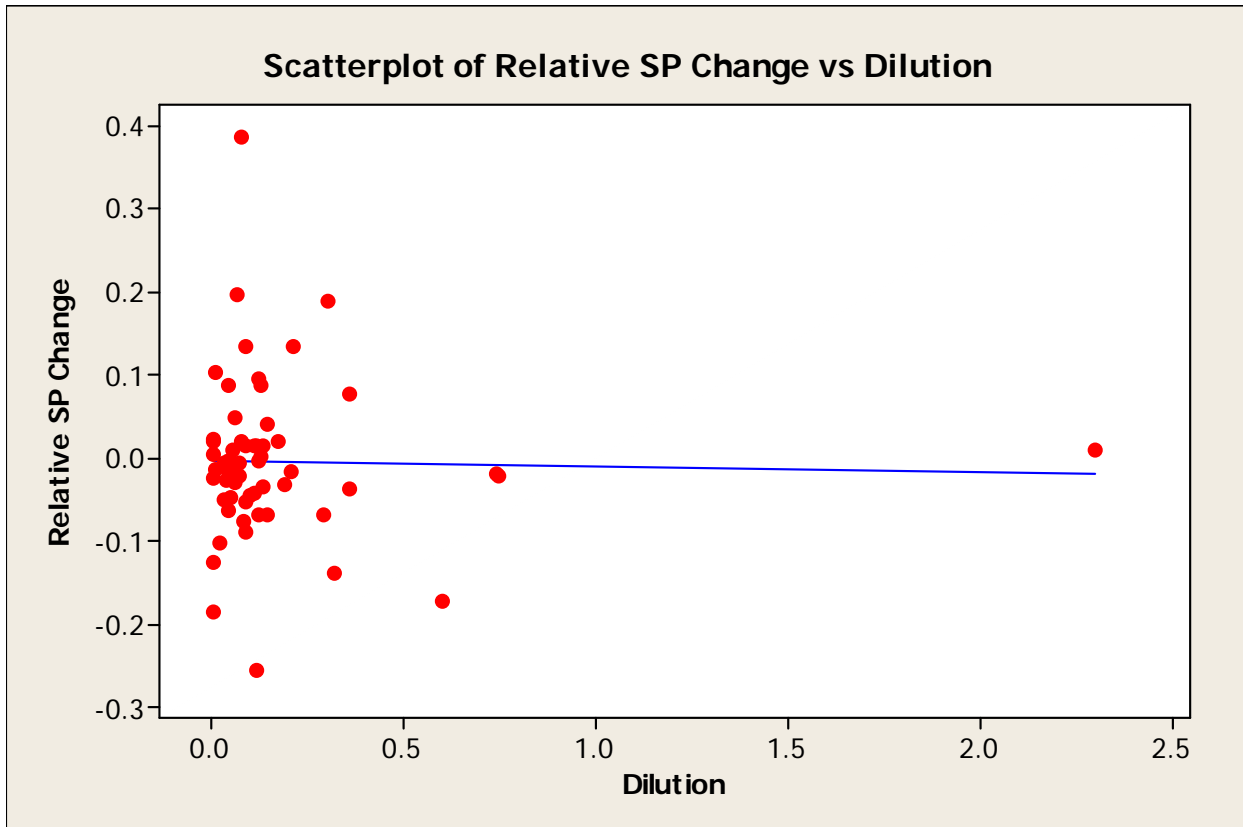

Scatterplot of Relative SP Change vs Dilution

V.   DISCUSSION

Below are some of the main factors which may explain why the hypothesis that there is no statistically significant relationship between changes in share price of junior gold mining companies upon follow-on equity issuance in recessionary and post-recessionary economic environment of 2008-2010 and projected company- / issuance-specific features could not be rejected. When considered specifically within the context of current economic situation, some of these issues may have a negative effect, while some – positive, especially when applied to individual companies. We posit that such dichotomy is the main reason for absence of an observable, statistically significant relationship. One other factor which impeded finding a statistically significant relationship is the sheer sample size, as there were mere 42 public and 59 private transactions in the time period examined.

Factors which may depress share price

Dilution. This is the most obvious, defensible and oft-quoted reason for a drop in share price upon a follow-on offering. Junior gold companies are no exception. According To Haywood Mining Team (2008), with "access to capital constrained by the global credit crisis…those companies successful in raising new equity expect this to be achieved at the expense of significant dilution" (p. 2). This 'outsized' dilution not only produces negative share price movements in line with expectations directionally, but also exacerbates their magnitude in comparison to what would be anticipated in a stable economic environment.

Change in risk profile assessment due to financing risks. In the recessionary and post-recessionary environment, investors are re-evaluating the risk profile of junior gold miners in their portfolios–and demanding a larger return for that risk. The resulting greater discount rate

decreases the present value of future cash flows, and precipitates a decrease in share price when the number of claims (i.e., shares outstanding) on those cash flows goes up after an offering.

Change in risk profile assessment due to technical and political risks. Due to the gradual decrease in effectiveness of exploration discussed below, companies are increasingly pursuing opportunities that entail higher technical and political risk options (McKeith, 2009, p. 14). As a result, while an injection of cash may facilitate development and eventual production, cash flows from such production are discounted at a higher rate, bringing down total firm value.

Realignment of NAV. NAV multiples have been reset to the 0.8x – 1.0x range by analysts (Haywood, 2008, p.4) as a result of the financing uncertainty and the increased risk of continuous financing across the industry at large. Consequently, new investors are getting a better value proposition than existing investors, leading to greater dilution for the latter.

Equity Issuance Assumptions. Exacerbating prior issue, according to Haywood Mining Team (2008), "companies [raise] project financing at prices significantly lower below project NAV" (p.4). Thus, as 'average' NAV across all security holders drops, and so does share price.

Reduced Effectiveness of Exploration Throughout the Industry. In his report, McKeith (2009) points out the decreasing long-term effectiveness of gold exploration globally. This is indicated by the metric of the ratio of in-situ value of gold found per exploration dollar spent: according to GFL/MinEx Consulting, for the 2000-2009 decade, this ratio was 11x (i.e., $11 worth of gold discovered for every $1 spent on exploration), compared to 23x, 57x, 83x, 105x and 42x times respectively for 1990-1999, 1980-1989, 1970-1979, 1960-1969 and 1950-1959. (p. 12). If this trend continues, investors should now and may very well in the future expect an increasingly lower return on each dollar they invest into exploration.

Factors which may boost share price

While it was found that *on average* (albeit with no statistical significance) a follow-on equity offering will decrease the share price of a junior gold mining company, it is easily observable in the sample that some individual firms do, in fact, get a boost to their share price as a result. This phenomenon can have the following explanations

Moving closer to development. The cash received in the follow-on equity transaction could provide pivotal in getting to the next stage of the company cycle. The broad market may be aware of that in specific situations based on prior management reports, and private investors–even more so based on pre-existing relationships with companies.

Signaling of a steady source of financing. A one-off transaction, while precipitating an immediate dilution effect–particularly when new shares are issued at a lower NAV multiple valuation than existing shares–could also be a signal of more cash injections to come in the future.

Acquisition arbitrage. McKeith (2009) notes that "Major-Junior partnerships [are a factor]–perhaps some of the investment is speculation on prospective acquisition by majors" (p. 18). While the equity issuance in itself is no way an indication of such upcoming acquisition or partnership, perhaps new investors informed of such event in the future accept a short-term flogging on dilution in expectation of future outsized gains.

VI. ISSUES OUTSTANDING / NEXT STEPS

Both industry literature and anecdotal evidence from insiders strongly point at the quality of a junior gold mining company management as one single issue pivotal to its valuation. Dr. Rudenno, in his seminal work "The Mining Valuation Handbook", mentions that the three most important issues to a gold mining company value are 1) Earnings Growth ; 2) Increasing Cash Flow [from Operations]; and 3) Exploration Success. Further, he posits that "management should have a track record of exploration success" in order to for the company to realize favorable future outcome of investment in the development of proven reserves. While it proved challenging to express "quality of management" in quantitative terms–and thus to apply this theory when evaluating a large group of junior gold miners using statistical tools – in this study, it is imperative to take a qualitative look at management quality when examining individual explorers'/mid-tiers producers' value proposition.

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