

CORPORATE GOVERNANCE AND MARKET CAP DESTRUCTION: A PREDICTIVE MODEL

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Abstract

By focusing on specific board variables, both company performance and stock market performance have been investigated and a more comprehensive corporate governance approach has been advocated to help improve such performances (Larcker et al. 2007 and Grove et. al. 2011). In this paper, we extend such analyses by investigating a relationship between such corporate governance variables and market capitalization. We specifically integrate corporate governance variables into a predictive model for market capitalization (cap) destruction, using the example of the largest six (“Big 6”) gold mining companies publicly-listed in the U.S.

Keywords: Corporate Governance, Market Cap Destruction, Mining Companies

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1 Introduction

One key report coming out of the 2008 financial crisis concerned corporate governance risk management. The New York Stock Exchange (NYSE) sponsored a Commission on Corporate Governance² which issued the following key corporate governance principles (2010):

- The Board of Directors’ fundamental objective should be to build long-term sustainable growth in shareholder value. Thus, policies that promote excessive risk-taking for short-term stock price increases, and compensation policies that do not encourage long-term value creation, are inconsistent with good corporate practices.

- Management has the primary responsibility for creating a culture of performance with integrity. Management’s role in corporate governance includes establishing risk management processes and proper internal controls, insisting on high ethical standards, ensuring open internal communications about potential problems, and providing accurate information both to the Board and to shareholders.

- Good corporate governance should be integrated as a core element of a company’s business strategy and not be simply viewed as a compliance obligation with a “check the box” mentality for mandates and best practices.

- Transparency in disclosures is an essential element of corporate governance.

- Independence and objectivity are necessary attributes of a Board of Directors. However, subject to the NYSE’s requirement for a majority of independent directors, there should be a sufficient number of non-independent directors so that there is an appropriate range and mix of expertise, diversity, and knowledge on the Board.

- Shareholders have the right, a responsibility, and a long-term economic interest to vote their shares in a thoughtful manner. Institutional investors should disclose their corporate governance guidelines and general voting policies (and any potential conflicts of interests, such as managing a company’s retirement plans).

Various empirical studies have investigated impacts of corporate governance upon companies’ risk taking (stock market based measures) and financial performance (return on assets, non-performing assets, etc.). The following corporate governance variables have been found to have a significant, negative impact on risk taking and financial performance (Allemand et. al. 2013, Grove et. al. 2011, Victoravich et. al. 2011) as well as fraudulent financial reporting or significant earnings management (Grove and Basilio, 2011):

- CEO duality (the CEO is also the Chairman of the Board of Directors)

- Board of Directors entrenchment (only staggered re-elections of the Board versus all Board members re-elected every year)

- Large debt to market capitalization

- Board size (larger boards, such as over 10, are less functional)

- Older Directors (over 70 years of age)

² With a press release on September 1, 2009, the NYSE announced the establishment of a Commission on Corporate Governance which is “an independent advisory commission to examine U.S. corporate governance and the overall proxy process. This advisory commission will take a comprehensive look at strengthening U.S. best practices for corporate governance and the proxy process”.

- Short-term compensation mix (cash bonuses and stock options versus long-term stock awards and restricted stock)

- Busy directors (serving on more than three boards)

- Non-independent and affiliated Directors (larger percentages of such directors versus independent directors)

Concerning CEO duality, the U.S. S&P 500 companies have now separated these two jobs 22% of the time, up from less than 10% in the last decade. More U.S. companies have been eliminating staggered board elections to reduce board entrenchment and have been eliminating anti-takeover provisions to reduce managers' entrenchment (Gorton & Kahl, 2008).

High leverage (debt to equity) levels were associated with high levels of banks' risk taking and poor financial performance in these previously cited corporate governance studies. The size of the board of directors has been addressed and bigger is not better (Bennedson et al., 2008 and Boone et al., 2007). Also, the importance of the board has been argued to be greater in banks than other sectors, due to directors' fiduciary responsibilities to shareholders as well as to depositors and regulators (Pathan, 2009).

When implementing the \$700 billion bailout of major U.S. banks, the U.S. Treasury did not replace any existing bank board members but added new directors to represent taxpayer interests. Many of these original directors oversaw the big banks and brokerage firms when they were taking huge risks during the real estate boom. A corporate government specialist concluded: "these boards had no idea about the risks these firms were taking on and relied on management to tell them" (Barr 2008).

For example, the five members of Lehman Brothers' risk management committee (which met only twice before the company went bankrupt) were an 80 year-old, retired banker, a 73 year-old, retired chairman of IBM, a 77 year-old, retired Broadway show producer, a 50 year-old, former CEO of a Spanish language television station company, and a 60 year-old, retired rear admiral of the U.S. Navy. The importance of industry experience for board members was also emphasized in the prior NYSE report.

"Mature" (old) directors (over 70 years old) have been found to be a hindrance on performance in various empirical studies (Allemand et. al. 2013, Grove et. al. 2011) and some companies have instituted a retirement age of 70. In terms of the monitoring role of the board, directors should have the skills, the time, and the conditions to perform the role. Thus, busy directors may not have the time to review company activities, and older directors may not have the energy and motivation (Ferris et al., 2003; Harris & Shimizu, 2004). All boards of publicly-listed companies on the NYSE and on NASDAQ must now have a majority of independent directors per the listing requirements of these stock exchanges.

By focusing on such specific board variables, both company performance and stock market performance have been investigated and a more comprehensive corporate governance approach has been advocated to help improve such performances (Larcker et al. 2007 and Grove et. al. 2011). In this paper, we extend such analyses by investigating a relationship between such corporate governance variables and market capitalization. We specifically integrate corporate governance variables into a predictive model for market capitalization (cap) destruction, using the example of the largest six ("Big 6") gold mining companies publicly-listed in the U.S.

2 Corporate governance results

We hand-collected corporate governance variables from SCHEDULE 14A, Proxy Statement pursuant to Section 14(a) of the U.S. Securities Exchange Act of 1934, for Newmont Mining Corporation, the only U.S. gold mining company examined here. The other five gold mining companies are Canadian companies, dual-listed on the Toronto Stock Exchange and the New York Stock Exchange. Their corporate governance data was hand-collected from FORM 40-F, Annual Report filed by non-U.S. companies pursuant to Section 13(a) of the U.S. Securities Exchange Act of 1934. Ten different corporate governance variables were compiled as follows:

- CEO Duality
- Board Entrenchment (two different measures)
- Debt to Market Capitalization
- Board Size
- Board Industry Inexperience
- "Mature" (Old) Directors (two different measures)
- Busy Directors
- Insiders on Boards

Other corporate governance variables, like short-term compensation mix, number of board meetings, poison pills, and block holders, were not readily available in all of the above government reports.

Results are shown in Table 1 for these ten corporate governance variables. They were assessed using a "dummy" variable approach, either ON as 1 or OFF as 0, depending upon whether the company exceeded the cutoff for each variable. Cutoffs were established, based upon reasonable levels of weaknesses from results in the previously cited empirical studies. Then the ON levels were totaled to determine an overall corporate governance score for each of these six companies. They are shown in Table 1 by their call symbols, along with their percentage of corporate governance red flags, or weaknesses, out of ten possibilities:

- ABX is Barrick Gold Corporation: 80% (8 out of 10)
- GG is Goldcorp Inc.: 50% (5 out of 10)
- NEM is Newmont Mining Corporation: 40% (4 out of 10)

- KGC is Kinross Gold Corporation: 50% (5 out of 10)
- EGO is Eldorado Gold Corporation: 40% (4 out of 10)

- IAG is IAMGOLD Corporation: 30% (3 out of 10)

Table 1. Corporate governance data: "Big 6" gold mining companies

(All Dummy Variables: ON = 1 if > Cutoff or OFF = 0)

Data or Variable:	ABX	GG	NEM	KGC	EGO	IAG
CEO Duality (CEO is Chairman of Board)	0	0	0	0	0	0
Board Entrenchment (On board > 10 Years: > 33%)	1	0	0	1	1	0
(On board > 5 Years: > 70%)	1	1	0	1	1	1
Debt to Market Capitalization (Cutoff is > 25%)	1	0	1	0	0	0
Board Size (Cutoff is > 10)	1	1	0	0	0	0
Board Industry Inexperience (Cutoff is > 15%)	1	1	1	1	0	0
"Mature" (Old) Directors (> 30% for > 70 years)	1	0	0	1	0	0
(> 50% for > 60 years)	1	1	1	1	1	1
Busy Directors on Other Boards (> 40% for > 3 boards)	1	1	1	0	0	1
Insiders on Board (Cutoff is > 24%)	0	0	0	0	1	0
Weak Corporate Governance (Out of 10 Possible Factors)	8	5	4	5	4	3
	80%	50%	40%	50%	40%	30%

The total number of corporate governance red flags for each of the six gold mining companies was then correlated with two different periods of market cap destruction for each of these six companies. The first correlation period was approximately two years, starting from the date of the all-time high gold price. The second correlation period was approximately one year, essentially the year 2013. The exact dates for the time periods and the correlations are below.

- Two-year period from the all-time high gold price of \$1,921.15 an ounce on September 6, 2011 to \$1,211 an ounce on December 24, 2013. The correlation of the summary corporate governance score for each company with its two-year market capitalization destruction was 86%.

- One-year period from the gold price of \$1,688.58 at the beginning of the year, January 4, 2013, to \$1,244 an ounce on January 31, 2014. The correlation of the summary corporate governance score for each company with its one-year market capitalization destruction was 70%.

We performed a further validity check concerning our non-weighted summary of corporate governance factors into an overall corporate governance model. These summary scores were integrated into our previous correlation analyses of market cap destruction with a suggested approach for the Securities and Exchange Commission's (SEC) emerging Asset Quality Model, which assesses

earnings quality of publicly-held companies filing with the SEC (Grove and Clouse, 2014a).

3 Asset quality model ("RoboCop") overview

In early 2013, the SEC announced that it would reorganize its enforcement division resources to focus on accounting fraud after its prior focus on Ponzi schemes. The SEC is developing fraud-detection software called Accounting Quality Model (AQM) that examines data submitted to it from approximately 9,000 publicly traded companies. Warning signs include a big difference between net income and actual cash outflows available to investors, declining market share, weak profitability compared to rivals, and unusually high numbers of off-balance sheet transactions. The SEC is also developing a computer program to analyze language in financial reports for clues that executives may be misstating results. For example, companies with poorer earnings often file annual reports which are harder to read and understand. Also, insurance companies have found that people filing fraudulent claims tend to use "I" and "we" less frequently than honest policyholders. If such a word-analysis program works, the SEC will add it to its AQM software (Eaglesham, 2013).

The SEC's new AQM software has been labeled by some in the financial industry as "RoboCop" after

the 1987 sci-fi thriller about a superhuman robotic police officer who patrolled the lawless streets of Detroit. Discretionary accruals are identified as either risk indicators or risk inducers. Risk indicators are factors directly associated with earnings management while risk inducers identify situations where strong incentives for earnings management may exist. While the SEC is keeping specific details about such risk factors in its AQM confidential, it has offered several clues in addition to those previously cited as warning signs. One such risk indicator is relatively high book earnings versus alternative tax treatments that minimize taxable income. For example, both Enron and WorldCom had book tax rates of about 40% but cash tax rates of only about 4%. Other warning signs might be frequent conflicts and/or changes of independent auditors and filing delays. This approach has model flexibility and adaptability, allowing the SEC to add or remove factors to customize its analysis to specific needs. Also, the SEC will be able to continually update its AQM for creative manipulations that filers are doing to conceal their frauds. The next generation RoboCop may scan the Management Discussion and Analysis (MD&A) section of annual reports for previously identified word choices as warning signs from prior fraudulent filers (Novack, 2013).

4 One approach to SEC's AQM ("RoboCop") model

Since the SEC has stressed flexibility and adaptability in its implementation of the AQM or RoboCop model, one such approach is illustrated here, using the six largest gold mining companies that trade in New York (Wood, 2013). Our approach stresses the importance of the SEC investigating and protecting against massive market capitalization (cap) destruction. Market cap destruction has frequently been caused by fraudulent financial reporting in the past. Well known examples, with their market cap destruction in parentheses, include WorldCom (\$180 billion), Enron (\$70 billion), and Qwest (\$65 billion), and all three companies' CEOs went to jail. More recent examples include Lehman Brothers (\$32 billion), Bear Stearns (\$25 billion), and Chinese companies using reverse mergers or reverse take-overs (RTOs) to list on U.S. stock exchanges (\$40 billion).

We analyzed the market cap destruction of these six gold mining companies by the change in their stock prices from the date of the all-time high gold price (\$1,921.15 an ounce on September 6, 2011) to the date of the recent two-year low gold price (\$1,211 an ounce on December 24, 2013). These six companies had market cap destructions from approximately \$7.2 billion to \$40.6 billion over this two-year period for an average of \$19.4 billion as follows: Barrick Gold (\$40.6); Goldcorp (\$26.8); Newmont Mining (\$21.7); Kinross Gold (\$11.0); Eldorado Gold (\$9.3); and IAMGOLD (\$7.2). We

also analyzed the recent one-year market cap destructions of these six companies from January 4, 2013 to January 31, 2014: Barrick Gold (\$15.7); Goldcorp (\$7.3); Newmont Mining (\$11.0); Kinross Gold (\$3.9); Eldorado Gold (\$10.4); and IAMGOLD (\$1.6).

Our approach uses both financial and non-financial measures. For financial measures, we correlated each of the specific models and ratios from our going concern research on these gold mining companies (see model and ratio details in Grove and Clouse, 2014c) to their market cap destructions in order to try to find SEC risk-type indicators that would help predict market cap destruction. These key models and ratios were: Altman bankruptcy model; fixed charge coverage; debt to equity; debt to EBITDA; Dechow fraud model; Beneish fraud model; quality of earnings; quality of revenues; gross profit ratio; accounts receivable to sales; inventory to cost of goods sold; depreciation to plant, property and equipment; asset turnover; and intangibles to total assets.

For a non-financial measure, we analyzed language in the annual reports of these six gold mining companies with the well-established Fog Index. The Fog Index translates the number of years of education a reader needs to understand the material. An ideal score is 8 (eighth grade education). Anything above 12 (high school senior) is too hard for most people to read. The Fog Index does not determine if the writing is too basic or too advanced for a specific audience but helps point out whether a document could benefit from editing or using simpler language. It was developed by Robert Gunning, an American businessman, in 1952. A Gunning Fog Index calculator is widely available on the internet with 65 different language choices (gunning-fog-index.com). The Fog Index was recently discussed in a multiple choice test for determining your Fraud IQ as follows (McNeal, 2012):

Analyzing data using Robert Gunning's Fog Index is most useful in uncovering which of the following fraud schemes?

- a) kickbacks paid to overseas vendors
- b) financial statement manipulation
- c) theft of proprietary information
- d) skimming of incoming cash receipts

The correct answer is b). Because notes to financial statements are inherently complex, it is not surprising that many receive a Fog Index score well beyond what would be considered easily readable by almost anyone. Therefore, a high Fog Index alone is not necessarily an indicator of fraudulent activity. The real value in applying the Fog Index to financial statement fraud detection lies in using the index to make comparisons between particular notes within the same period, to similar notes in other periods, or to the notes of other organizations in the same industry. Any significant changes or deviations in a Fog Index score that are highlighted by these types of comparisons

could indicate fraudulent activity and warrant a closer look.

For comparing organizations in the same industry as recommended in this Fraud IQ test answer, we chose to compare the first few paragraphs of about 100 words in each CEO's 2012 Letter to the Shareholders for these six gold mining companies. A specific example of a communication issue was a gold stock analyst's recent recommendation: "We put out a call to sell Kinross Gold recently and much of that is because I don't like the way management communicates with their shareholders" (Kalinowski and Nelson, 2013).

5 RoboCop model results

Our results are shown in Table 2. We added our corporate governance model scores (X6) to our previously identified five variables (X1-X5) in our research where these six gold mining companies had been analyzed to develop an approach for a SEC AQM (RoboCop) model (Grove and Clouse, 2014a). In Table 2, RoboCop scores were then correlated with the two-year market cap destructions for each company. The initial correlation in our prior research, using the five variables (X1-X5) in our RoboCop model, was 85%, a strong positive correlation. When our corporate governance model scores (X6) were added to our RoboCop model, the correlation improved to 87%. Each of these six variables is now discussed and, then, the predictive validity of the RoboCop model is tested.

The Fog Index had one of the highest positive correlations at 0.64, indicating the potential of combining both non-financial and financial measures into an SEC AQM or RoboCop approach. All of these correlations appeared to have reasonable validity, i.e., positive correlations with higher market cap destructions (big is bad) for a higher Fog Index (X1), higher Debt to EBITDA (X2), higher Intangibles to Total Assets (X5), and higher (weaker) corporate governance scores (X6) and negative correlations with higher market cap destructions (small is bad) for a lower quality of earnings (X3) and lower accounts receivable to sales (X4).

Reasonable validity for these six factors can be demonstrated by recent examples. Concerning the positive correlation of the Fog Index with market cap destruction (big is bad), the SEC made Groupon file an amended S-1 registration statement for its recent initial public offering (IPO) since there was an inadequate explanation of its newly created profitability metric: Adjusted Consolidated Segment Operating Income (ASCOI). The subsequent amendment only described the mechanics of this ASCOI number, not any theoretical or practical justification (other than to keep adding back expenses in order to turn an operating loss into an operating profit). Another S-1 amendment was required since Groupon was using the gross, not net, revenue

approach to calculate its revenues. Such questions helped contribute to the decline in anticipated market cap of \$31 billion to the actual \$17 billion raised in the Groupon IPO. Groupon's stock price has subsequently declined over 80% in the two years since the IPO, i.e. a market cap destruction of about \$13.6 billion.

Concerning the positive correlation of the Debt to EBITDA ratio with market cap destruction (big is bad), this ratio is often used as a loan covenant. For example, Qwest had a covenant that this ratio could not exceed 4 or the loan could be called. Qwest narrowly avoided violating this covenant by selling its most profitable division, yellow pages advertising, to a venture capitalist, often nicknamed vulture capitalists. Concerning the positive correlation of the Intangibles to Total Assets ratio (big is bad), WorldCom hid \$4 billion of operating expenses in long-term assets (both intangibles and tangibles) over a two year period. Concerning the positive correlation of the corporate governance scores (big is bad and weaker corporate governance), Enron, WorldCom, Qwest, Tyco, Parmalat, and Satyam (major frauds and market cap destructions of the 21st Century) all have been shown to have weak corporate governance (Grove and Basilico, 2011).

Concerning the negative correlation of quality of earnings with market cap destruction (small is bad since operating cash flows (OCF) are divided by earnings), one of the SEC's warning signs is a big difference between net income and actual cash outflows available to investors which starts with OCF. There were five Chinese IPO and RTO companies that destroyed \$4.1 billion of market cap on U.S. stock exchanges or 10% of the recent \$40 billion market cap destruction by such Chinese companies. The quality of earnings signaled a red flag (small is bad: less than 1) 42% of the time in the 19 reporting years of these Chinese companies' filings with the SEC (Grove and Clouse, 2014b).

Concerning the negative correlation of Accounts Receivable to Sales with market cap destruction (small is bad), several of these Chinese RTO companies created phony cash, not credit, sales so their accounts receivables were relatively low as a percentage of sales and, as a result, they had over 50% of their total assets in phony or overstated cash (Grove and Clouse, 2014b). Similarly, Enron, Parmalat (nicknamed "Europe's Enron"), and Satyam (nicknamed "Asia's Enron") all had over \$1 billion of phony cash on their last fraudulent balance sheets (Basilico et. al., 2012).

For the weighting issue of how to integrate all these key variables, including the corporate governance scores, into an aggregate AQM or RoboCop model, we just used a simple approach of weighting each variable (X1-X6) by its correlation coefficient with market cap destruction. Thus, these Pearson Correlation Coefficients (socscistatistics.com/tests/pearson) became the coefficients for the six variables that comprised the AQM or RoboCop overall score or model (see the

equation in Table 2). This somewhat arbitrary approach yielded an overall Pearson Correlation Coefficient of 0.87, a strong positive correlation, relating the RoboCop model scores to the two-year market cap destructions of the six gold mining companies in Table 2.

To test the predictive capability of the RoboCop model developed in Table 2, we then calculated the correlation of the RoboCop model scores with the

market cap destructions for the six gold mining companies from the approximate one-year period, January 4, 2013 to January 31, 2014. The correlation was 80%. While this correlation was not as large as the 87% correlation in Table 2, it is still a strong positive correlation and suggests that this RoboCop model does have predictive capability for market capitalization destruction.

Table 2. RoboCop correlations: 2 year market cap losses

Company	Fog Index X1	Debt / EBITDA X2	Quality Earnings X3	AR / Sales X4	Intang./ TA X5	Corp Gov Score X6	Robo Cop Score Y	Market Cap Destruc Billions
Barrick	17.48	12.3	-8.03	0.92	0.93	8	33.99	40.6
Goldcorp	16.54	0.3	1.20	0.92	2.27	5	14.68	26.8
Newmont	16.80	1.4	1.31	1.20	0.80	4	14.11	21.7
Kinross	12.89	-1.4	-0.50	0.61	0.38	5	11.66	11.0
Eldorado	16.98	1.0	0.93	1.84	1.08	4	14.00	9.3
IAMGOLD	14.08	0.9	1.19	1.49	0.63	3	11.00	7.2
Pearson Correlation Coefficient	0.64	0.81	-0.75	-0.45	0.38	0.86	0.87	

RoboCop: $Y = 0.64X1 + 0.81X2 - 0.75X3 - 0.45X4 + 0.38X5 + 0.86X6$

Note: Correlations are with each company's market capitalization destruction from the all-time high gold price of \$1,921.15 an ounce on September 6, 2011 to \$1,211 an ounce on December 24, 2013. The correlation with each company's RoboCop score is 0.87, a strong positive correlation.

6 Conclusions

Our approach appears to have potential for integrating both non-financial and financial measures, especially corporate governance variables, into an overall model or rating system to help predict market capitalization destruction, using the example of the largest six gold mining companies listed on U.S. stock exchanges. Their approximate two-year market cap destructions were calculated from the change in their stock prices from the September 6, 2011 high point of the gold price to the two-year low of the gold price on December 24, 2013 and their approximate one-year market cap destructions from January 4, 2013 to January 31, 2014. However, we have developed just one approach for the SEC to consider in its flexible and adaptive approach to its AQM or RoboCop model for analyzing public company filings.

Our approach is encouraging since both non-financial factors of corporate governance scores and Fog Index scores had strong positive correlations with the two-year market cap destructions of the six gold mining companies, 86% and 64%, respectively. These two non-financial measures became part of our overall SEC AQM or RoboCop model which also had strong positive correlations with the market cap destructions of these six gold mining companies, 87% for the two-year period and 80% for the one-year period. Thus, our approach shows that both non-financial and financial measures can be integrated into an overall model for analyzing market capitalization destruction

and, possibly for fraud detection, as well as enhancing corporate governance for boards of directors and management.

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