

Governance and Finance Professionals Can Protect Share Price After a Reputation Crisis

Lay Summary

During a reputational crisis, equity pricing is especially sensitive to investors' cognitive biases. This study shows that while crisis communications is an important tactic, positioning risk management and reputationally-relevant corporate financial information—corporate asset structure and share repurchasing volume— front and center in a visible way, can impact up to 80% of the direction and magnitude of a company's equity price changes following an adverse event. The data confirm the power of non-traditional financial measures and instruments – when deployed and communicated effectively – to shape stakeholder behaviors and protect equity prices.

The data reviewed in this study point to several steps companies' leadership can take to mitigate crises and diminish potential equity losses, including:

- Reducing the percentage of the firm's balance sheet assets that are intangible, as a way of minimizing equity losses in first days after a crisis occurs;
- Buying back shares with some of those liquidated assets, as a way of minimizing equity losses in the first year after a crisis occurs;
- Managing enterprise reputation risk and the firms' reputational value volatility, as a way of mitigating risk and reducing equity losses by the second year after a crisis;
- Utilizing financial instruments such as insurances to communicate governance and enterprise risk management strategies to stakeholders in simple and credible terms.

The cases studied included Boeing Company, Bausch Health, BP PLC, Equifax Inc., Facebook, Inc., Johnson & Johnson, Samsung Electronics Co., Target Corporation, United Continental Holdings, Inc., Volkswagen AG, Wells Fargo & Company, and Wal-Mart Stores Inc., all of which suffered from a crisis that threatened their reputation at some point in the last decade.

Governance and Finance Professionals Can Protect Share Price After a Reputation Crisis



There is a clear pre-emptive role for governance and risk management professionals in protecting reputation value.

Abstract

Reputation risk is the peril of impaired cash flows due to behavioral changes by angry disappointed stakeholders, usually following an adverse event. Crisis communications can help mitigate the consequences of a reputation crisis.^{1,2,3} But as critics have observed, post-event marketing/crisis communications alone is not risk management.⁴ For reputation risk mitigation, governance, risk and finance professionals need to implement strategies keyed to the protection of corporate cash flows.^{5,6,7}

This study shows that implementing certain strategies before an event and framing reputationally-relevant corporate financial information—corporate asset structure, reputation value volatility, and share repurchasing volume—by governance and risk professionals can impact almost 80% of the direction and magnitude of a company's equity price changes after an event.

Greater volatilities and intangible asset fractions impaired prices; greater share repurchase volumes boosted prices.

These findings were derived from a quantitative deconstruction of twelve well-known reputation crises from

this past decade and are consistent with modern theories of behavioral economics. Common patterns in timing, course, and magnitude of losses were analyzed.

Quantitative risk factors for equity losses near-term, at one year, and at two years were validated through three statistically significant linear regression models (All, F test < 0.01 ; $R^2 > 0.64$), notwithstanding that the small size and non-random nature of the sample were suboptimal.

This research is a starting point for further investigation, and the implications for reputation risk management are useful. The data show that there is a clear pre-emptive role for governance and risk management professionals in protecting reputation value. The data also confirm the power of non-traditional financial measures and instruments to shape stakeholder behaviors, and support the strategic public disclosure of enterprise risk management efforts.

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Introduction

In a survey published in early 2020, global executives, on average, attributed 63 percent of their company's market value to their company's overall reputation.⁸ Risk to that value, or reputation risk, is defined in this study in behavioral economic terms[‡] as the peril of economic damage to a firm and its reputation from the changed behaviors of aggrieved and emotionally charged stakeholders.^{9,10,11,12,13,14,15} Within this paradigm, distinguishing qualitative features of reputation risk emerge.

A firm *at risk* is perceived by its stakeholders to have promised a *go-forward* state in matters of ethics, innovation, safety, security, sustainability or quality.¹⁶ Reputation risk begins

to manifest when, having set stakeholder expectations, a firm is perceived to have materially and non-fortuitously breached its promise(s); such perceptions may result from stakeholders' direct experiences or indirectly through their exposure to media coverage.¹⁷

The breach is often experienced initially as an operational failure with property or liability damages. It only blossoms into reputational damage as stakeholders hold the firm's leadership culpable (a "scandal"), and translate their anger and disappointment into behaviors that impair future cash flows through reduced revenues, increased costs, and increased extraordinary expenses.^{18,19}

Over time, the "changed" stakeholder behaviors become the new "normal" behaviors; and

while the emotional intensity may diminish, the economic effects may persist for weeks, months, and even years.

Managing reputation risk is both a governance and enterprise-wide endeavor involving all aspects of a firm's risk management apparatus.

Five questions for governance, risk, and finance professionals, shown below, are addressed in this white paper.

The answers are based on observations and insights derived from a quantitative deconstruction of twelve well-known reputation crises from this past decade: Boeing,²⁰ Bausch Health/Valeant,²¹ BP,²² Equifax,²³ Facebook,²⁴ Johnson & Johnson,²⁵ Samsung,²⁶ Target,²⁷ United Airlines,²⁸ VW,²⁹ Wells Fargo,³⁰ and Walmart.³¹

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Reputation risk, is ... the peril of economic damage to a firm and its reputation from the changed behaviors of aggrieved and emotionally charged stakeholders.

Questions Addressed in This Study

- What measures indicate firms at greater risk for a reputational value crisis?
- What governance and operational actions could mitigate the consequences of a future adverse event?
- Which governance and operational actions can mitigate the consequences beyond the usual scope of crisis communications before or during a crisis?
- What instruments of governance and risk management can be used to augment a firm's overall brand development marketing effort?
- When is the best time to deploy a crisis communications effort?

[‡] Behavioral economics, which rejects the notion of a perfectly rational *Homo economicus*, recognizes that psychological, cognitive, emotional, cultural and social factors all can shape economic decisions. For example, the way in which imperfect information is presented; and the cognitive biases and heuristics through which humans process and act on that information shape the choices made by various corporate stakeholders in the aftermath of a crisis.



NAME(S)	SMBL	EVENT TYPE	DATE	EVENT DETAILS	GT SEARCH
Boeing Company	BA	Safety	3/10/19	Second 737MAX crashes	Boeing 737 MAX
Bausch Health nee Valeant Pharmaceuticals International, Inc.	BHC	Ethics	10/21/15	Short seller alleges fraud	Valeant
BP PLC	BP	Sustainability	4/20/10	Off-shore oil drilling platform explosion and spill	BP oil spill
Equifax Inc.	EFX	Security	9/7/17	Cybersecurity breach disclosed	Equifax hack
Facebook, Inc.	FB	Ethics	3/17/18	Personal data transfer disclosed	Facebook Cambridge
Johnson & Johnson	JNJ	Ethics	8/26/19	Opioid court verdict announced	Johnson & Johnson opioid
Samsung Electronics Co.	SEC	Innovation	9/2/16	Galaxy Note 7 phone recall	Samsung Galaxy 7 fire
Target Corporation	TGT	Security	12/15/13	Cybersecurity breach disclosed	Target hack
United Continental Holdings, Inc.	UAL	Quality	4/9/17	Passenger forcefully evicted	United Airlines passenger
Volkswagen AG	VW	Ethics	9/18/15	Regulators demand auto recall	VW emissions
Wells Fargo & Company	WFC	Ethics	9/8/16	Regulators accuse bank of fraud	Wells Fargo account fraud
Wal-Mart Stores Inc.	WMT	Safety	11/24/12	Lethal fire in supply chain factory	Walmart factory fire

Table 1. One dozen index cases of adverse events from this past decade generally regarded as exemplary reputational crises. Image: Website Scrape as Indicated, Montage Steel City Re.

Methods

The iconic crises shown in Table 1 were selected on the following overlapping criteria: their dates in the prior decade; the adverse events triggering reputational value loss involved operational and/or governance failures in the reputationally-sensitive areas of ethics, innovation, safety, security, sustainability and quality; an unambiguous date at which the failure became a matter of public knowledge, and the adverse events generated both significant media coverage and public interest (Figure 1).^{32,33,34,35,36} Date-specific media coverage was first suggested in retrospective articles in the mainstream media, and corresponding date-specific public interest linked to the event was confirmed by a Google Trends search (GT Search).^{37,38} Alphabetically, the firms selected were Boeing, Bausch Health/Valeant, BP, Equifax, Facebook,

Johnson & Johnson, Samsung, Target, United Airlines, VW, Wells Fargo, and Walmart (Table 1).

Primary Data

In the week before their crises, these firms had an average market capitalization of \$174 billion, (median \$196 billion, range \$17-437 billion), an average net profitability of 12.9%, and an average intangible asset value fraction of 79%. Eight were constituent members of the S&P500 index. They operated in 9 commercial sectors (Figure 2).

The date shown in each row of Table 1 associated with each of the twelve companies is the date in which an event was disclosed publicly through news channels and the date at which stakeholders showed great interest in the issue evidenced by their Google Trends search (Figure 2). The terms used to generate the graphics are shown in Table 1 column 6.

For each company and date selected as the primary chronological reference point for the adverse reputational event, spot stock price data and S&P 500 index metrics were recorded at -2 years, -1 year, -2 weeks, +2 week, +1 year, and +2 years. The data were retrieved as CSV files from the online resource, Yahoo Finance.³⁹ Profit and loss data and balance sheet data from the spot time period of -2 weeks before the event for each company were downloaded from the commercial data provider, Factset (FactSet Research Systems Inc. [NYSE: FDS]).⁴⁰ Weekly reputational value metric (RVM%) data for each company covering the full span from -2 years to +2 years were retrieved from Steel City Re's proprietary actuarial data base.⁴¹ The time block between -2 weeks and +2 weeks was named the "Event Window" as per generally accepted research methods for measuring event-driven equity movements.^{42,43,44}

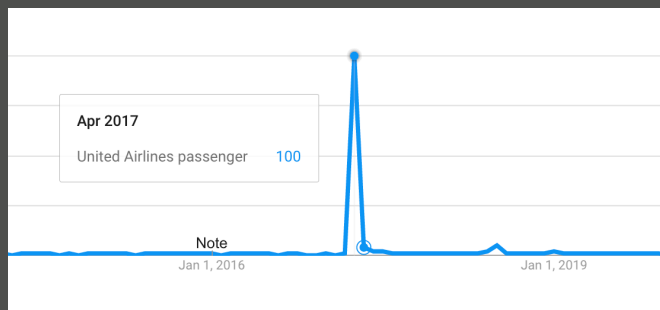


Figure 1. Crisis-triggered public stakeholder searches as reported by Google Trends to queries illustrated in the boxes above for the search terms "UNITED AIRLINES PASSENGER." (Original graphic generated by Google Trends and captured by screenshot 7 January 2020.)

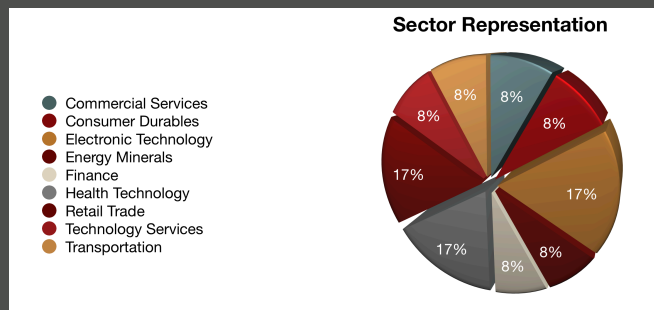


Figure 2: Nine commercial sectors are represented by the 12 index firms whose reputational value losses were analyzed in this quantitative study.

Derived Data

Equity changes for the time frames between the six major time markers were calculated arithmetically, $(v_2 - v_1)/v_1$. Daily equity returns were calculated geometrically, $\ln(v_2)/\ln(v_1)$. Equity volatility was calculated as the standard deviation of the daily returns. Equity value

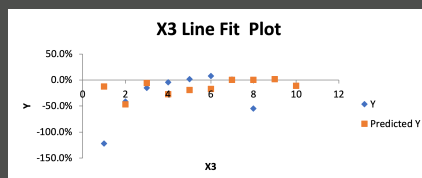
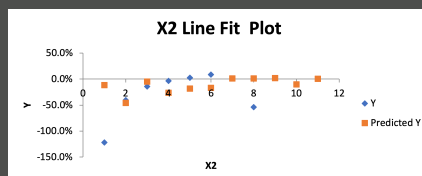
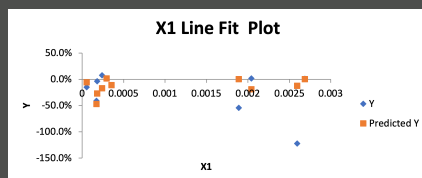
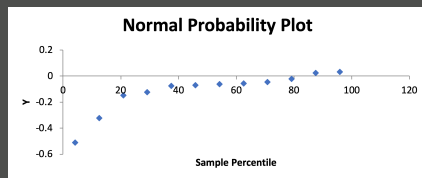
returns were normalized by subtracting the S&P500 index returns for the respective time frames. For each of the respective time frames, equity value beta were calculated using the S&P500 index as the market proxy. Balance sheet changes over the six major time markets were calculated arithmetically. Reputational value

changes over the six major time markers were calculated by simple differences, $v_2 - v_1$. Reputational value volatility was calculated as the standard deviation of the weekly changes. Data not normally distributed were transformed per standard statistical methods to enable hypothesis testing with linear regression models.

Regression Models

The individual plots for the constituent elements of the regression models for the three time periods—4 weeks event window, 1 year after the event, and 2 years after the event—are illustrated below. There are four graphs for each time period. The graphs are the Normal Probability, X1 Line Fit (Reputation Value Volatility), X2 Line Fit (Fractional Share Reduction (Buy Back)), and X3 Line Fit (% Intangible Assets).

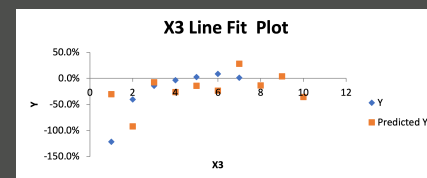
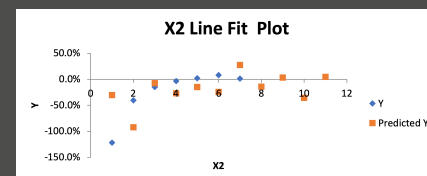
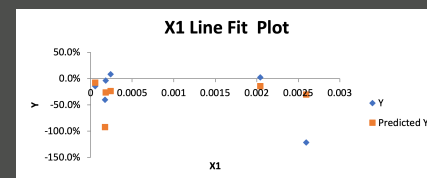
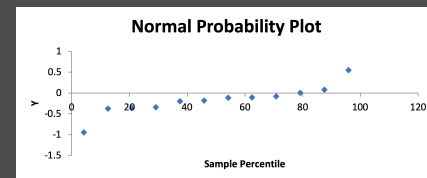
Event Window (4 Weeks)



Legend:

- Normal Probability 4 Week Window
- X1 Line Fit (Reputation Value Volatility)
- X2 Line Fit (Fractional Share Reduction (Buy Back))
- X3 Line Fit (% Intangible Assets)

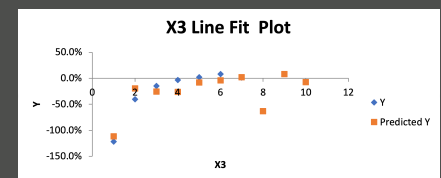
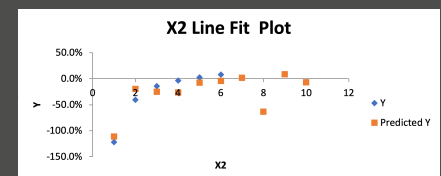
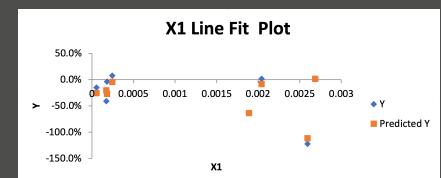
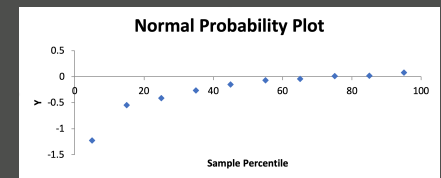
At One (1) Year



Legend:

- Normal Probability at One (1) Year
- X1 Line Fit (Reputation Value Volatility)
- X2 Line Fit (Fractional Share Reduction (Buy Back))
- X3 Line Fit (% Intangible Assets)

At Two (2) Years



Legend:

- Normal Probability at Two (2) Years
- X1 Line Fit (Reputation Value Volatility)
- X2 Line Fit (Fractional Share Reduction (Buy Back))
- X3 Line Fit (% Intangible Assets)

Results

Characterization of Event-Driven Equity Movement Magnitude and Timing

At the end of the Event Window, Year 1 and Year 2, the nominal average equity value loss from the beginning of the Event Window among the twelve firms was -10.5%, -3.7% and 1.2%. Subtracting the value of the growing market returns, the normalized average equity value loss for the 3 milestones were -11.6%, -17%, and -26.5% (Table 2). In addition, there remained significant spot price volatility.

Within each of the three time periods, the average nominal nadir of equity loss was -12.9%, -26.9% and -27.5%. There was also substantial variance between the twelve firms. (Figure 3).

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	Event Window	After 1 Year	After 2 Years
Average End of Period Nominal Equity Gain (Loss)	(10.5%)	(3.7%)	1.2%
Average End of Period Normalized Equity Gain (Loss)	(11.6%)	(17.0%)	(25.6%)
Average Within-Period Nominal Equity Loss Nadir	(12.9%)	(26.9%)	(27.5%)

Table 2. Average nominal and normalized equity gains/(losses) after a major reputationally-impactful adverse event at twelve iconic firms over the past decade. While the average nominal equity value bounced back, both the period volatility with deep nadirs and material end-of-period normalized underperformance affirm that the return on investments in enterprise risk and reputation management and risk governance can be significant

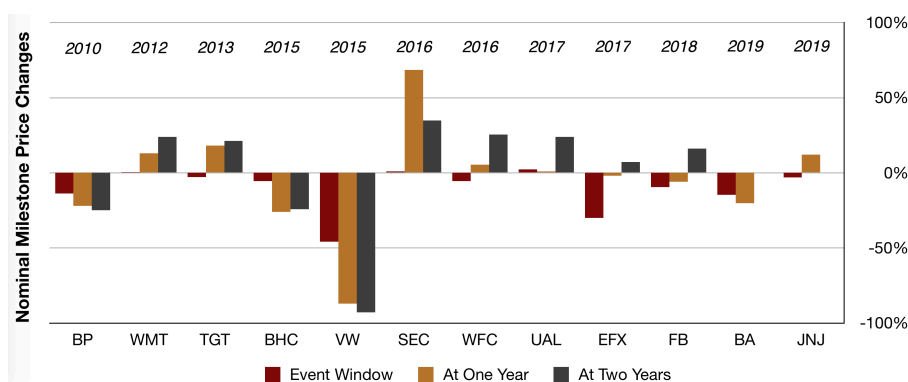


Figure 3. Nominal changes in equity value among the 12 firms studied three milestone periods: Event Window, at one year later, and at two years later. Certain loss patterns such as BP and Volkswagen (VW) show progressive worsening over time. Most others showed brief nominal losses followed by nominal gains. Both Boeing (BA) and Johnson & Johnson (JNJ) are too recent to have generated year two data. Please see Table 1 for a key to the other company name symbols along the x-axis.

The substantial variance among the nominal price changes increased as time progressed from the Event Window, peaking at one year after the event. The respective nominal equity value ranges at the Event Window, Year One and Year Two were 48.2%, 155.6%, and 127.8% (Figure 4). The variance for the normalized returns (subtracting the S&P500 index returns) at the same three milestones were 54.4%, 149.5%, and 129.9% respectively.

Nadir equity losses generally manifested within the first 90 days. The median values for days elapsed from the beginning of the Event Window to the nominal nadir equity value by end of year 1, end of year 2, and greatest single day post-event equity loss were 43, 59, and 92 days respectively. The averages were 96, 159, and 108 days respectively (Figure 5)

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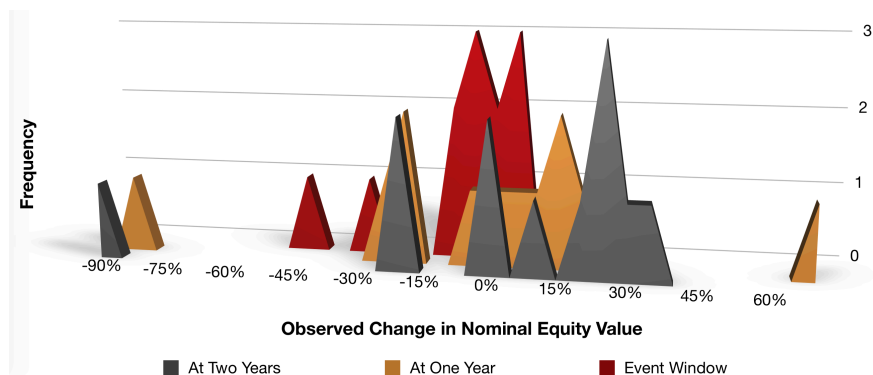


Figure 4. Same data as in figure 3 arranged to illustrate variance in nominal returns. The variance in nominal price changes triggered by a reputational event increased as time elapsed beyond the Event Window, peaking at 156% at one year. This substantial variance did not simply correlate with respect to the timing of the event within the past decade, the firm's commercial sector, or the firm's market capitalization

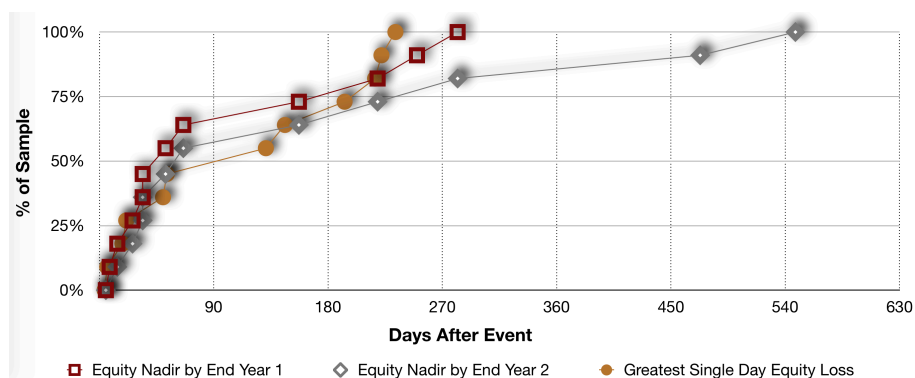


Figure 5. The latency of nadir nominal values, and the single greatest one-day drop in equity value were reached, for more than half of the firms, within 90 days from the start of the Event Window following which these firms' equity values began to recover. For other firms, value loss persisted for the greater part of the first year after the event and in two cases, well beyond.

Hypothesis Testing with Quantitative Explanatory Models

We hypothesized that the significant variance in equity returns could be explained by pre-event conditions that reflected governance and management strategy and quality. In fact, no less than 64% of the variance of the nominal equity value gains and losses at the end of Event Window, Year

1, and Year 2 were explained by simple linear regression models.

The dominant quantitative explanatory risk factor in all three models was the one-year reputational value volatility pre-event (RVM% volatility). All things being equal, greater volatility led to lower normalized returns. A greater fractional value in firm intangible asset value depressed returns,

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especially during the initial Event Window. Equity share repurchases raised equity returns at all times (Table 3).

Equity Gain/(Loss) Period	Linear Regression Model F-test (p)	Adjusted (R2) (Linear Regression Power to Explain Variance)	Intercept Coefficient (p)	One Year Reputational Value Volatility (RVM% Volatility) ante (p)	% Intangible Asset (p)	Period Share Repurchase (p)	Predicted vs. Observed Normalized Equity Returns (R2)
Event Window	0.002	77%	0.035	0.083*	0.002	0.004	83%
End Year 1	0.010	64%	0.031	0.034	0.071*	0.009	74%
End Year 2	0.007	78%	0.005	0.005	0.145*	0.004	85%

Table 3. Statistical confidence measures, p and R2. All three regression models explained more than 63% of the variance in equity returns, with the p value for the model's F test all <.02. The three linear regression models explaining equity value gain/(loss) following an adverse event did so with only three factors. All these suggested that more share repurchases in their respective time periods, less reputational value volatility, and less intangible asset fractional value were associated with higher equity returns for those periods. *values outside the generally accepted statistical confidence interval of <.05.

The linear regression model for equity loss during the Event Window showed that a firm's one-year reputational value volatility ante (RVM% volatility) combined with its intangible asset fraction at the start of the Event Window and the magnitude of equity share repurchased prior to the event explained 77.1% (adjusted R²) of the variance (F test significance $p < .005$).

Less reputational value volatility ante, more share repurchases ante and less intangible asset fractional value at the time of crisis were associated with higher equity returns at the end of the Event Window. The plot of equity returns predicted by the study's linear regression model compared to equity returns actually observed for this milestone period had an R² (line slope) of 0.83. (Figure 6).

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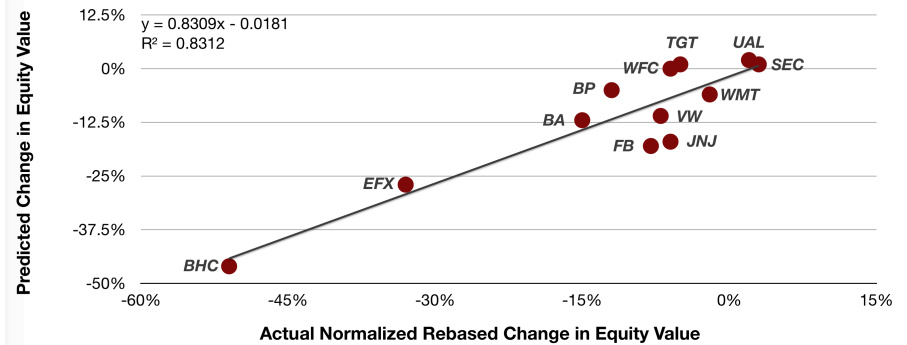


Figure 6. Modeling Equity Losses in the Event Window. Test of regression model quality evidenced by the agreement between the observed and expected equity value changes during the Event Window. The regression model demonstrating the positive effects of share repurchase in the year prior to the crisis and the negative effects of increasing reputation value volatility and intangible asset value on the firms' short-term equity value changes during a crisis period had an F-test significance of $p < .005$ and an adjusted R² of 77.1%.

The linear regression model for equity gains and losses by the end of the first year after an event showed that a firm's one-year reputational value volatility ante (RVM% volatility) combined with its intangible asset fraction at the start of the Event Window and the magnitude of equity share repurchased during the first year after the event explained 64% (adjusted R²) of the variance (F test significance $p < .02$). Less reputational value volatility ante, more share repurchases ante and less intangible asset fractional value at the time of crisis were

associated with higher equity returns at the end of Year 1. The plot of equity returns predicted by the study model compared to equity returns actually observed for this milestone period had an R² (line slope) of 0.74. (Figure 7).

The linear regression model for equity gains and losses by the end of the second year after an event showed that a firm's one-year reputational value volatility ante (RVM% volatility) combined with its intangible asset fraction at the start of the Event Window and the magnitude of equity

share repurchased during the two years following the event explained 79.5% (adjusted R²) of the variance (F test significance $p < .01$). Less reputational value volatility ante, more share repurchases through the end of the second year after a crisis and less intangible asset fractional value at the time of crisis were associated with higher equity returns at the end of Year 2. The plot of equity returns predicted by the study model compared to equity returns actually observed for this milestone period had an R² (line slope) of 0.85. (Figure 8).

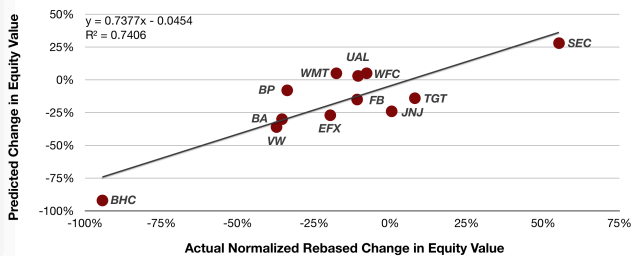


Figure 7. Modeling Equity Losses by End Year One. Test of regression model quality evidenced by the agreement between the observed and expected equity value changes by the end of the first year following an event. The regression model demonstrating the positive effects of share repurchase in the year prior to the crisis and the negative effects of increasing reputation value volatility and intangible asset value prior to the event on the firms' equity value gains and losses in the first year after a crisis had an F-test significance of $p < .02$ and an adjusted R² of 64%.

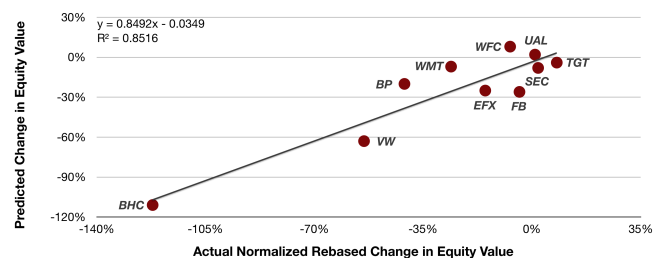


Figure 8. Modeling Equity Losses by End Year Two. Test of regression model quality evidenced by the agreement between the observed and expected equity value changes over the two years following an event. The regression model demonstrating the positive effects of share repurchase in the two years following event and the negative effects of increasing reputation value volatility and intangible asset value prior to the event on the firms' equity value gains and losses by the end of the second year after an event had an F-test significance of $p = .01$ and an adjusted R² of 77.7%.

Discussion and Implications for Governance and Risk Professionals

Reputation risk is a peril of impaired corporate cash flows caused by economically-relevant changes in the behaviors of aggrieved and emotionally charged stakeholders. It is a perennial top C-suite and boardroom concern according to serial surveys,^{45,46,47} corporate regulatory disclosures,⁴⁸ the governance, risk and compliance literature,^{49,50,51,52,53} CEO and director turnover notices,^{54,55,56} and D&O litigation filings.^{57,58}

Strategies for mitigating the risk, according to nearly 40 years of qualitative marketing literature, are limited to pre-crisis virtue signaling through acts of corporate social responsibility,^{59,60} controlled marketing tone,⁶¹ and professionally managed crisis communications.^{1,2,3}

This study shows that delegating reputation risk management to marketing is doing companies a disservice. In fact, empirical evidence indicates that the framing of reputationally-relevant corporate financial information—

corporate asset structure, reputation value volatility, and share repurchasing volume— by governance and risk professionals before and during a reputational crisis can impact almost 80% of the direction and magnitude of a company's equity price changes following an adverse event.

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Framing reputationally-relevant corporate financial information—corporate asset structure, reputation value volatility, and share repurchasing volume— before and during a reputational crisis can impact almost 80% of the direction and magnitude of a company's equity price changes.

Even at their least influential point in a reputational crisis life cycle—the first year after a crisis—the framing by governance and risk professionals explained 64% of the variance. The other 36% presumably comprises both the impact of traditional crisis communications marketing as well as idiosyncratic aspects of each crisis.

The data confirm the power of non-traditional financial

measures and instruments to shape stakeholder behaviors and support the strategic public disclosure of enterprise risk management. Three measures not typically strategically publicized—corporate asset structure, reputation value volatility, and share repurchasing volume—proved to be significant in this study

The dominant measure in all three models was the pre-crisis one-year reputational value volatility (RVM% volatility). This underlying reputational value metric is generated algorithmically from cash flow expectations. The derived volatility measure reports the ability of a company to both manage and fulfill the expectations of its stakeholders.

It is a measure of enterprise risk management quality and a testimony to the harmony with which a company's operating, communications, and enterprise risk apparatus function. RVM% volatility is not a measure of the level of performance per se, but of the consistency of a firm's performance in meeting the expectations it has set among stakeholders.

In general, reputational value volatility is a metric that is useful as a feedback loop to management, as a reporting metric to a company's board, to Treasury professionals building a case of risk controls to the capital markets,⁶² and D&O underwriters seeking new D&O liability insurance pricing and underwriting insights. This study shows that this variable is a useful predictor of economic gain/loss in a crisis. It was most impactful in estimates for long term returns.

The second measure was the fraction of intangible assets in the enterprise's value, measured 2 weeks ante. It is a simple measure of the difference between market capitalization and book value. A humble balance sheet figure, this variable's value is the product of decisions by senior management and board with respect to balance sheet management, especially debt. High values of this variable were most impactful in depressing equity returns in the event window, and progressively less so in later periods such that while the three-variable regression model

was statistically significant at the end of year 2, this variable's contribution was outside the threshold for significance ($p=.10$) (Table 3).

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Reputation insurance can tell simple, easy to understand, and completely credible stories about risk management in ways that have proven historically to be exceedingly effective in mitigating the effects of a crisis.

The third measure was the share repurchase record. Share repurchases are the product of a company's financial strategy. This study showed that all things being equal, the greater the proportion of outstanding shares repurchased, the greater the equity return in any period. The greatest impact was observed in the first year after an event and the least impact was observed by shares repurchased before a crisis.

A fourth risk management measure, not tested in this study, but described extensively in the literature is risk transfer.⁶³ It is

well established in the insurance literature that risk transfer products such as warranties and insurance—here, reputation insurance—can tell simple, easy to understand, and completely credible stories about risk management in ways that have proven historically to be exceedingly effective in mitigating the effects of a crisis.^{64,65}

Underpinning the empirical observations of investor decision making, and by extension, the overall reputation of the firms in the mind of stakeholders, are principles of behavioral economics, the field of decision making bounded by the way in which imperfect information is presented; and the cognitive biases and heuristics through which humans understand and act on that information.^{66,67,68} Behavioral economics posits that various signals—stories, experiences, and emotions—in their framing of options can exploit biases and affect both belief formation and decision-making.^{69,70,71,72}

A reputational crisis is a time of great uncertainty and risk. At the onset of a crisis, investors have to make quick equity pricing decisions. In the informational fog of a crisis, rule of thumb estimates rich in bias will be prevalent. Some are considered below.

The ambiguity effect,⁷³ the tendency to avoid options for which the probability of a favorable outcome is unknown, will thin the supply of buyers just as loss aversion⁷⁴ boosts the supply of sellers seeking to protect their gains-to-date. The result is an equity price down spike. Investors are likely to envision a more favorable outcome and buy on the price down spike if they have anchored⁷⁵ to the belief that a firm's risk management and risk governance are in a better-than-average state of control. Volatility of the reputational value metric is an indexed measure of control that can help frame investor's decision making. Credit default swap spreads are also a measure of control, and correlate with the reputational value metric.⁷⁶ Investors are also more likely to envision greater borrowing

power or sources of contingent capital if a firm has insurance or assets against which it may borrow. Greater liabilities, negative book value, and higher intangible asset fraction—attribute substitution⁷⁷—all send contrary signals. Ongoing share buybacks, on the other hand, can suggest both that cash flows are adequate and that equity is underpriced thus nudging investors towards a higher value estimate.^{78,79}

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The findings suggest firms will be better off thinking of reputational value as a measure of companies' ability to meet or exceed stakeholder expectations; and deploying marketing along with strong risk management, finance and governance controls to communicate that thinking to stakeholders who will appreciate and value it.

In the year following a crisis, investors will be responding much more to the news. The quality of a firm's crisis communications efforts at this time will have the greatest impact. Simple, credible,

authentic stories are always the most persuasive. Ongoing share buybacks are a way for a company to signal that insiders know something not generally appreciated publicly, especially with respect to liquidity, and nudge investors towards a higher value estimate.

By the second year, information overload⁸⁰ and crisis fatigue sets in. The spin has been spun. The historic intangible asset fraction is largely irrelevant.⁸¹ And thus the historic quality of management and board governance becomes more prominent features of an investor's valuation decision tree. Both companies that were in a superior state of control, and those that weren't, are expected to resume their patterns, absent information to the contrary.

In closing, there are many compelling reasons for firms to implement an overarching governance and enterprise reputation risk management strategy.^{82,83} This study provides evidence that there are clear benefits to disclosing that strategy using non-traditional financial measures and instruments.

Criticisms

Outside academic reviewers raised four issues, two on the small size and non-randomness of the selected sample and two others on statistical methods.

The criteria for the selection of the firms studied limited the number of useful examples. For the data to be relatable, the firms studied had to have had “universally” acknowledged reputational crises. To control for the effects of post-crisis marketing, they needed to have access to quality crisis communications services. Few large well-known quality firms exist with such PR services, have experienced crises recognized in the popular literature, and are “interesting enough” to generate ranked searches on Google Trends.

Further research can solve that problem. In the interim, governance

and finance professionals may choose to implement the new strategies developed by study.



In the interim, governance and finance professionals may choose to implement the new strategies suggested by this study.

Statistical testing indicates the significance of the models. Of course, run enough variables, and eventually something shows up with a less than 1/20 chance of being spurious. While many of the statistical tests in this study indicated less than a 1/200 chance of being spurious, the risk of spurious results in studies is mitigated in the general case by testing against pre-formed hypotheses.

This is one such study. For nearly two decades, we've hypothesized that share buybacks and reputational value volatility were meaningful factors in losses triggered by reputational crises. We incorporated these elements into our proprietary measures of reputational value and risk that have underpinned our advisory and insurance businesses, and power the data sets that power investment strategies.

Finally, at a highly technical level, one reviewer noted that temporal regressions are inherently problematic. All regressions in this study were based on spot measurements rather than temporal series measurements. Moreover, the seemingly random loss patterns shown in Figure 3 related to the timing of a firm's crisis during the past decade fail to show any statistically meaningful correlation.

Summary Strategy for Governance and Risk Professionals

The data reviewed in this study point to several steps companies' leadership can take to mitigate crises and diminish potential equity losses, including:

- Reducing the percentage of the firm's balance sheet assets that are intangible, as a way of minimizing equity losses in first days after a crisis occurs;
- Buying back shares with some of those liquidated assets, as a way of minimizing equity losses in the first year after a crisis occurs;
- Managing enterprise reputation risk and the firms' reputational value volatility, as a way of mitigating risk and reducing equity losses by the second year after a crisis;
- Utilizing financial instruments such as insurances to communicate governance and enterprise risk management strategies to stakeholders in simple and credible terms. During the crisis, the data indicate that increasing the magnitude of equity shares repurchased by firms can have a significant impact in the first year following an event.

The findings suggest firms will be better off thinking of reputational value as a measure of companies' ability to meet or exceed stakeholder expectations; and deploying marketing along with strong risk management, finance and governance controls to communicate that thinking to stakeholders who will appreciate and value it.

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