GMIRATINGS

New Frontiers in Risk Modeling

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Introduction

GMI Ratings has long maintained that the increasing frequency of Black Swan events in capital markets will continue to challenge traditional approaches to risk modeling and portfolio management. For at least the past two decades, doubts have been mounting about the ability of classical economic theories and portfolio management philosophies to reliably describe, explain or predict anomalous trends and events in the stock market. No longer relegated to the margins, these doubts now shape the mainstream investment community's critical scrutiny of its own analytical toolkit for predicting value-crushing scandals all too familiar to investors in Chesapeake Energy, Carnival, Wal-Mart, Halliburton, MF Global, News Corporation and BP and so many other widely held stocks.

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There's a growing body of research and opinion stemming from the financial community's quest for more inclusive ways to study and mitigate issuer risk. It isn't surprising to us (but encouraging nonetheless) that mainstream institutional investors are starting to acknowledge that ESG and accounting-related risk metrics represent important – if not the most urgently needed – additions to the arsenal of any decision-maker mindful of the frequency and complex causes of adverse events stemming from variables typically overlooked in classical economic theories and approaches to risk modeling.

In this paper, we have summarized GMI Ratings' latest research that continues to demonstrate that non-traditional measures of risk can significantly improve the performance of traditional investment managers and insurers. Beyond our own research, we have highlighted here the recent work and ideas of several leading academics, research firms and investors. Considered in aggregate, this research reinforces the following points:

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- The basic character of global capital markets has changed dramatically. Volatility has increased as has the frequency of anomalous events that defy classical economic theories, including Modern Portfolio Theory (MPT) and the Efficient Market Hypothesis.
- The theoretical underpinnings of modern finance need to expand. By now, it is evident that much of the value destruction over the past decade resulted from operational and financial variables inadequately reflected in prevailing approaches to risk modeling and investing.
- Investment managers and insurers can significantly reduce their exposure to unanticipated and mispriced risks by incorporating governance, ESG, forensic accounting and other non-traditional risk metrics into stock screening and selection, portfolio risk assessment and, for active managers, day-to-day dialog with portfolio companies.

First, we'll review the latest results of our rolling 10-year AGR validation study and our Litigation Risk Model. We'll also review recent research and opinion from diverse researchers and investors, including The International Institute for Sustainable Development (IISD), DB Climate Change Advisors, JP Morgan and Jack Bogle, the founder of The Vanguard Group.

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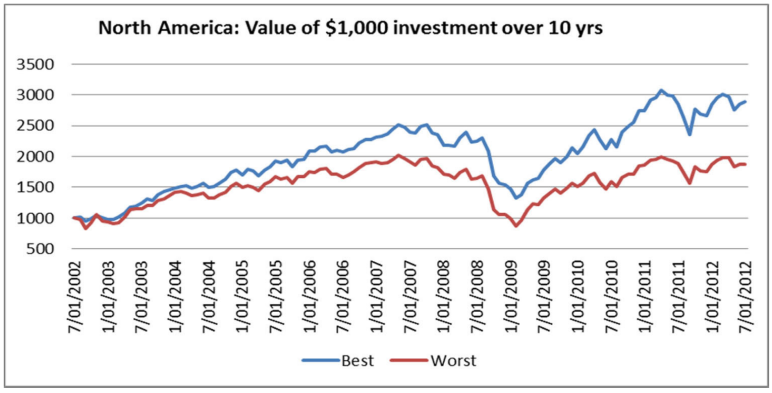
Forensic Accounting Metrics Can Significantly Affect Portfolio Performance

Yesterday, we released the latest monthly results of a rolling 10-year study comparing the equity performance of companies with top-decile and bottom-decile Accounting and Governance Risk (AGR) ratings. AGR is GMI Ratings' proprietary measure of investment risk reflecting accounting irregularities and weaknesses in corporate governance strongly correlated with securities classaction litigation, financial restatements, SEC enforcement actions, bankruptcies and other risks often undetected by traditional research methods.

"Over the 10-year period ended July 1, 2012, a portfolio of companies with top-decile AGR ratings would have outperformed the lowest-decile portfolio by 55%."



Although striking, the outperformance of companies with top-decile AGR ratings perfectly aligns with common sense and intuition. The chart essentially reveals the impact of accounting integrity on equity performance. But traditional models and metrics typically perform poorly in detecting telltale signs of fraud or mild distortions. Hence, the logic of re-thinking traditional models.

Non-Traditional Metrics Accurately Gauge Litigation Risk

Last week, we released the results for our Litigation Risk Model for the first half of 2012. As in past periods, we found that a majority of companies facing Federal class action lawsuits were ranked in the lowest 20% of the risk ratings distribution. These results confirm again that the Litigation Risk Model is a valuable tool for investors and insurers hoping to predict class actions, which frequently lead to reputational damage, stock price declines and settlement costs.

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Fifty-seven percent of the companies that had Federal class action suits filed against them in the United States in the six months ended June 30, 2012 were correctly classified in the lowest-rated quintile a year before the lawsuit was filed. Only 2% of such companies were ranked in the highest quintile. Eighty percent of all companies facing class actions in this period were ranked in GMI Ratings' two worst quintiles.

We know from experience and explicit feedback from our clients in the D&O insurance industry that the incorporation of our non-traditional risk measures significantly improves the predictive power of in-house risk models.

Impact on Stock Selection

Of course, statistical analysis cannot fully capture how a stock-picker can use novel risk metrics in day-to-day buy, sell and hold decisions. But recent history offers many examples of corporate crash-and-burn stories foreshadowed by changes in ESG metrics more clearly than in traditional measures of company-specific investment risk. These include MF Global and Hewlett-Packard, whose problems were accurately predicted by GMI Ratings years in advance of the blow-ups.

Lenses and Clocks: Bringing Greater Depth, Breadth and Granularity to Our Understanding of Risk

In June 2012, a thorough and thoughtful report -- "*Financial Stability and Systemic Risk: Lenses and Clocks*"[1] – delivered a welcome reminder about the urgent need to broaden the scope with which all the participants in the global financial system approach the study of short-term and long-term investment risk. The report eloquently expresses not only the sober conclusions but also some visceral responses to the massive destruction of value by undetected risks over the past decade.

> *"Increasingly, long-term responsible investors un-derstand that the financial implications of unsustainable development on pension portfolios could be catastrophic."*

> *"The losses incurred by institutional investors when 'unrecognised and systemic risks wiped out more than a decade of investment returns' have focused attention on whether our traditional understanding of fiduciary duty is adequate for our complex, interconnected global financial markets, where product innovation has been such a focus." (Page 26)*

> *"Increasingly, long-term responsible investors understand that the financial implications of unsustainable development on pension portfolios could be catastrophic. Such investors have a duty to intervene and help shape the debate." (Page 28)*

Specifically, the report argues that detecting material risks in the post-financial-crisis market requires a heightened appreciation of risks stemming from ESG and other variables not yet incorporated into prevailing approaches to risk modeling and portfolio management.

> *"…a consideration of broader risk issues by investors, including environmental, social and governance (ESG) considerations, is not just permissible but in many cases is obligated."*

> *"Since publication of the Freshfields Report in October 2005, there has been a development of 'soft law' across various jurisdictions that highlights a clear and developing trend whereby a consideration of broader risk issues by investors, including environmental, social and governance (ESG) considerations, is not just permissible but in many cases is obligated. In the case of institutional investors and the subprime collapse that led to the financial crisis, many questions surrounding the governance of banks in which they invested, including policies and practices regarding the fundamentals of risk management at the institutional and systemic levels, appear to have gone unasked at worst and raised but not pressed at best." (Page 29)*

> *"'[T]here is significant evidence of the positive and negative impacts environmental, social, and governance issues can have on share prices.' This report[2] also opens the discussion on the fact that as ESG risk affects shareholder value, it falls into the category of information that a reasonable investor would consider to be significant and therefore needs to be considered by all fiduciaries." (Page 38)*

We certainly share the central message of the Lenses and Clocks report. In fact, in light of the frequency and far-reaching consequences of events triggered by undetected risks, the call for a more holistic definition of risk may qualify as an understatement or a statement of the obvious. The authors correctly contend that mainstream institutional investors need to integrate ESG risks more fully and meticulously into portfolio management. But that is only the beginning – certainly not the end – of the long overdue re-definition of risk.

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[1] A joint paper by the United Nations Environment Programme Finance Initiative (UNEP FI), the International Institute for Sustainable Development (IISD) and The Blended Capital Group (TBCG)

[2] R. A. Liroff, 2005, "Benchmarking corporate management of safer chemicals in consumer products—A tool for investors and senior executives," Investor Environmental Health Network and the Rose Foundation.

Beyond Exclusion: The Path to Superior Returns

DB Climate Change Advisors also issued a lengthy report in June with strikingly unequivocal findings about the superior market performance and cost of capital of companies with high ESG ratings. Titled "Sustainable Investing: Establishing Long-Term Value and Performance," this study helped clear up confusion that had long persisted about the performance characteristics of sustainable investment strategies. Numerous academic literature reviews in recent memory have concluded that sustainable investing strategies deliver "mixed results". Experts and firms steeped in ESG research have long known that this kind of analysis errs in conflating responsible investing with SRI strategies that rely primarily on exclusionary screens. The DB report represents an important departure from this undifferentiated approach. Focusing on ESG factors, DB found that:

- 100% of academic studies conclude that companies with high ESG scores enjoy a lower cost of capital.
- 89% of academic studies found correlations between high ESG scores and market-based outperformance.
- 85% of academic studies found correlations between high ESG scores and accounting-based outperformance.
- Governance (the G in ESG) remains the most important aspect of ESG metrics

The Broader Reaches of Sustainable Thinking

Over the past year alone, progressive thinkers across the spectrum of capital markets participants have opined with heighten urgency about the need to reconsider prevailing notions about systemic and company-specific risk:

- In a New York Times interview published on August 11, 2012, legendary Vanguard founder John Bogle spoke emphatically about systemic risks in global capital markets. "It's urgent that people wake up," he says, as he explains why this is the worst time for investors that he has ever seen. "The economy has clouds hovering over it," Mr. Bogle says. "And the financial system has been damaged. The risk of a black-swan event — of something unlikely but apocalyptic — is small, but it's real."
- In March 2012, a JP Morgan analyst Jemma Green developed this presentation on the need to incorporate ESG risks into credit ratings. Here too the conclusion is clear… another example of an established approach to risk assessment that will remain incomplete and inadequate without broadening its sphere of reference to include non-traditional measures of risk.

In Conclusion: Beyond ESG, Beyond Black Swans

Since the publication of Nassim Taleb's seminal work, the idea of Black Swans evolved from a sensible theory to a meme often regurgitated without due thought. But we sincerely believe that the surging cultural prominence of this idea reflects a healthy and overdue attempt to articulate inescapable conclusions about the changing character of capital markets. Here's our humble attempt at formulating these conclusions:

"In our opinion, the 'routinization' of anomalies primarily reflects flaws embedded in the system of perverse incentives that reward poor performance and excessive risk-taking."

- The Rise of Ordinary Anomalies – If Black Swans are rare by definition, the increasing frequency of these events clearly suggests that the original meaning of the black-swan metaphor doesn't fully capture the nature of the salient changes in capital markets since 9/11 or since the collapse of Lehman Brothers in 2008. Anomalous events that defy traditional theories and risk models have become a routine occurrence. Not all of them are cataclysmic. Importantly, most of them are man-made. In our opinion,

the "routinization" of anomalies primarily reflects flaws embedded in the system of perverse incentives that reward poor performance and excessive risk-taking.

- Crumbling Paradigms – Given the magnitude of changes that have shaken capital markets over the past decade or so, it would be impossible and unwise to resist the temptation to bring up another meme-like idea – that is, the notion of paradigm shifts most closely associated with the work of physicist and philosopher of science Thomas Kuhn. This idea, too, has been cheapened by overuse, but it does have special resonance for modern finance. In *The Structure of Scientific Revolutions*, Kuhn explained that dominant paradigms survive, as they should, as long as they can describe, explain or predict observed phenomena more effectively than competing theories. But the accumulation of anomalous events that do not conform to the reigning paradigm warrants and typically causes the paradigm's revision or displacement. We can't think of a more precise characterization of the state of modern finance. Further, it is clear that most of the countervailing evidence – the unanticipated events that can devastate portfolios and pension assets – comes from ESG and accounting-related variables that still elude most traditionalist students of issuer risk.

One fundamental conclusion is beyond question, in our opinion: broader adoption of ESG risk metrics – and a stronger emphasis on the underlying corporate practices – can boost investment returns while nudging the global economy toward a more sustainable foundation. But we continue to remind our clients that ESG is only the beginning of the search for a sensible definition of risk. We are only beginning to focus on how much material information remains unaccommodated in classical economic and financial analysis. Of course, with the evolution of risk modeling in capital markets, one thing must remain constant – that is, our focus on performance.

About GMI Ratings

GMI Ratings is an independent provider of research and ratings on environmental, social, governance and accounting-related risks affecting the performance of public companies. The firm's ESG ratings for nearly 5,500 companies worldwide incorporate 120 ESG KeyMetrics™ to help investors assess the sustainable investment value of corporations. The firm also provides Accounting and Governance Ratings (AGR®) for approximately 18,000 public companies worldwide. AGR metrics reflect the accuracy and reliability of a company's financial reporting. Clients of GMI Ratings include leading institutional investors, banks, insurers, auditors, regulators and corporations seeking to incorporate accounting and ESG factors into risk assessment and decision-making. A signatory to the Principles for Responsible Investment (PRI), GMI Ratings was formed in 2010 through the merger of GovernanceMetrics International, The Corporate Library and Audit Integrity. In the 2012 Independent Research in Responsible Investment (IRRI) Survey conducted by Thomson Reuters Extel and SRI-CONNECT.com, GMI Ratings was named "The Best Independent Corporate Governance Research Provider". For more information please visit www.gmiratings.com.