Tracking the Market Performance of Companies That Integrate a Culture of Health and Safety

An Assessment of Corporate Health Achievement Award Applicants

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Objective: The aim of this study was to assess the hypothesis that stock market performance of companies achieving high scores on either health or safety in the Corporate Health Achievement Award (CHAA) process will be superior to average index performance. **Methods:** The stock market performance of portfolios of CHAA winners was examined under six different scenarios using simulation and past market performance in tests of association framed to inform the investor community. **Results:** CHAA portfolios out-performed the S&P average on all tests. **Conclusions:** This study adds to the growing evidence that a healthy and safe workforce correlates with a company's performance and its ability to provide positive returns to shareholders. It advances the idea that a proven set of health and safety metrics based on the CHAA evaluation process merits inclusion with existing measures for market valuation.

Learning Objectives

- Discuss previous research linking worker health to the stock market performance of companies, including the previous study tracking the performance of companies receiving the Corporate Health Achievement Award (CHAA).
- Summarize the methods and findings of the new study assessing the performance of portfolios of stock in companies recognized for excellence in health and wellness and/or safety.
- Discuss the implications for the use of instruments for measuring the business value of workplace health and safety programs, such as the Integrated Health and Safety Index.

This article tests the hypothesis that the stock market performance of companies that achieve high-scoring assessments in either health or safety during the Corporate Health Achievement Award (CHAA) process will be superior to average market-index performance. The CHAA was established in 1995 by the American College of Occupational and Environmental Medicine (ACOEM) to recognize the healthiest, safest companies and organizations in North America and to raise awareness of best practices in workplace health and safety programs.[1] Since the introduction of the first awards in 1996, 31 companies have achieved distinction as CHAA recipients. These companies have demonstrated outstanding achievement and excellence in employee health, safety and environmental management, outcomes, and trends. Companies that participate in the CHAA process and at score high in just one component may receive the CHAA Model Program Award, signifying their excellence in one area but not overall excellence in both health and safety.

Applicants for the CHAA are judged on 17 standards in four general categories: Leadership and Management, Healthy Workers, Healthy Environments, and Healthy Organizations. A series of points are awarded in each category, with the maximum number of points possible being 1000. The 17 standards, distributed throughout the four categories, address various aspects of workplace safety, health, and wellness. The scoring for each standard is based on a four-level system.

Level 1. Program Description

Organizations provide evidence that appropriate programs exist for each CHAA standard. CHAA applicants must clearly delineate relevant programs they have implemented, while demonstrating how these programs meet the CHAA standards.

Level 2. Program Dissemination

Organizations provide evidence that the programs are well deployed in all appropriate areas and departments.

Level 3. Outcome Measures

Organizations demonstrate that they have created a metrics system for their safety, wellness, and health programs and provide clear data on what is being measured.

Level 4. Trend Data

Organizations present trend data showing a reduction of health risk, health-cost savings, or other impact on the business as a result of their safety, wellness, and health programs. Trend data demonstrate the success of these programs over time.

Points are awarded for each of the 17 standards within the four categories and each category has a maximum number of points of 250. Table 1 provides a comprehensive view of the categories, standards, and scoring for the CHAA. The transparency of the scoring system and process offers aspiring organizations insight into what is required so that corporate leadership can better guide their companies to success.

BACKGROUND

In recent decades, U.S. employers have made significant progress in addressing issues of health and safety in the workplace. Since 1970, workplace fatalities have been reduced by more than 65% and injury and illness rates have declined by 67%, according to

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TABLE 1. Corporate Health Achievement Award

	Program Exists	Program Is Well Deployed	Program Is Being Consistently Measured	Program Trends Are Being Tracked Over Time	Points
1.1 Organization and Management					75
1.2 Health Information Systems					75
1.3 Evaluation and Quality Improvement					75
1.4 Innovation—Expanding the Envelope					25
1.0 Leadership and Management Total points					250
2.1 Health Evaluation of Workers					75
2.2 Occupational Injury and Illness Management					75
2.3 Traveler Health					30
2.4 Mental and Behavioral Health and Misuse of Substances					70
2.0 Healthy Workers Total Points					250
3.1 Workplace Health Hazard Evaluations, Inspection, and Abatement					60
3.2 Education Regarding Worksite Hazards					60
3.3 Personal Protective Equipment (PPE)					55
3.4 Toxicological Assessment and Planning					25
3.5 Emergency Preparedness, Continuity Planning, and Disruption Prevention					50
3.0 Healthy Environment Total Points					250
4.1 Health Promotion and Wellness Including Nonoccupational Illness and Injury					70
4.2 Absence and Disability Management					60
4.3 Health Benefits Management					50
4.4 Integrated Health and Productivity Management					70
4.0 Healthy Organization Total Points					250

the Occupational Safety and Health Administration (OSHA).[2] Worker deaths have been reduced from approximately 38 per day in 1970 to 12 per day in 2012.[2]

Coinciding with these advances in safety was the rise of a workplace wellness movement in the United States, driven in part by rising health care costs in the 1970s and 1980s.[3] As costs increased, employers began to introduce worksite health promotion programs on a large scale in an effort to keep their employees healthier and thus reduce health care cost impacts on their employee health plans. More recently, this has led enlightened employers to build a more comprehensive approach in the workplace, creating what are termed ‘‘cultures of health and wellbeing’’ and ‘‘cultures of safety.’’[4]

As a consequence, among the fastest growing disciplines within the occupational health and safety community over the last decade has been health and productivity management (HPM)—a strategic approach to workplace health and safety that focuses on identifying the total impact of employee health on business results and reducing impacts on performance and productivity costs—such as absenteeism and presenteeism—through targeted health and safety programming. Engaging in a comprehensive effort to promote wellness, reduce worker safety risks, and mitigate the complications of chronic illness within workplace populations can produce remarkable effects on health care costs, productivity, and performance.[5]

Recent studies have begun linking worker health with the market performance of companies.[6] In 2013, a seminal study tracked the stock market performance of publicly traded companies that had received the CHAA as a result of their strong health, safety, and environmental programs.[7] Using simulation and past market-performance, a theoretical initial $10,000 investment in these publicly traded companies over a 13- to-15-year span was shown by Fabius et al[7] to outperform the Standard & Poor’s 500 (S&P 500) using four different financial models. Although correlation is not the same as causation, the stock market performance of the award-winning companies versus S&P 500 results consistently suggests that companies focusing on the health and safety of their workforce can yield greater value for their investors, demonstrating competitive advantage in the marketplace (Figure 1).

The rise of interest in health and safety measures as indicators of corporate value is gaining traction among thought leaders, who believe a universal system of health and safety metrics reporting could emerge as a new standard of valuation, much as social and environmental sustainability emerged as corporate valuation indicators via the Dow Jones Sustainability Index (DJSI) in the late 1990s.[8]

In August 2014, the Vitality Institute, a global research organization focusing on workplace health, published *Integrating Health Metrics into Health Reporting*, a concept paper advancing the idea of public reporting of workforce health measures as a means of gauging corporate performance and better informing the investment community. In making the case for establishment of universal health and safety metrics, Tryon et al[9] noted that such a system could help U.S. employers overcome many of the barriers that keep them from achieving a more widespread culture of health in the workplace. The integration of health metrics into corporate reporting, they noted, ‘‘builds leadership and advocacy both within organizations and outside organizations to highlight the

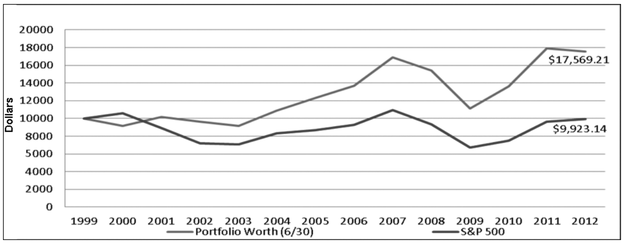

FIGURE 1. Publicly traded CHAA recipients versus S&P 500.[7]

importance of prevention within businesses as a national strategic imperative."

Other organizations are exploring similar ideas internationally. In South Africa, for example, financial services company Discovery is partnering with the University of Cambridge and RAND Europe to assess worker health in South African companies using a healthy-company index. The index, which was launched in 2011, measures the impact of chronic disease and health and safety programming on South African companies and provides a system for them to measure the health status of their employees. A study of the index by University of Cambridge and RAND Europe is underway.[10]

A United Kingdom led initiative of international companies has developed a series of metrics for public reporting on employee engagement and wellbeing known as the Business in the Community (BITC) Public Reporting Guidelines.[11] The metrics will be updated periodically to reflect best practices and is a means of measuring, reporting, and tracking employee wellbeing as an indicator of business success.

Workplace health and safety experts in the United States recently published a guidance paper for employers, proposing a new framework for integrating health and safety programs. Importantly, the paper introduced the concept of an Integrated Health and Safety Index (IHS Index) for employers and investors, enabling them to more accurately measure the business value of their health and safety programs. On the basis of the methodology of the widely used DJSI, the IHS Index measures results across economic, environmental, and social dimensions.[8]

Taken together, these factors suggest that companies recognized for the excellence of their health and safety programs perform better in the market. This study attempts to refine our understanding of what factors contribute to enhanced performance in the market by examining the impact of companies' health and safety programs independently: Is the stock market performance of companies with such programs, judged separately on their merits by the CHAA, superior to the average performance of other companies? If so, might it be possible to use elements of the CHAA process to create an additional data set that would help the corporate and investment community determine market valuation?

METHODS

To objectively explore this question, we tracked the stock market performance of companies with proven health and/or safety programs under six different scenarios. We studied companies that have applied for ACOEM's CHAA, as this award program assesses not only a company's health and wellness activities but also its environmental and safety programs. The methodology utilized was similar to the method used by Fabius et al[7] in the 2013 CHAA study. The modeling entailed building portfolios of CHAA-participating companies that scored high in either health or safety, along with CHAA-participating companies that scored high in both categories. The hypothetical portfolios would then be rebalanced for each year of the study period—1997 to 2014—to reflect changes that would have occurred over the space of those years as new high-scoring companies were identified and added as a result of the yearly CHAA process. Unlike the 2013 study, the dividends in this study were reinvested annually in both the experimental and the comparison S&P models.

The first step was to review all applicants of the CHAA from 1997 through 2014. Companies were identified that had scored over 175 or 200 in the Healthy Organizations category (which measures health and wellness) out of a perfect score of 250 and over 350 or 400 in the Healthy Workers and Healthy Environments categories (which measure safety) out of a perfect score of 500. A score of 200 in the Healthy Organizations category and a score of 400 in the Healthy Workers and Healthy Environments categories represented the median score among the applicants and award recipients. To ensure a broader mix of companies, and to minimize the influence of a few companies that scored extremely high in the health and safety categories, we lowered the median score by an additional 12.5%. Next, we determined which of these companies were publicly traded on the stock market and developed six portfolios from these cohorts. As all six portfolios were selected from these publicly traded high-scoring companies, they had considerable overlap.

Using simulation and past market performance, a theoretical initial $10,000 investment in publicly traded award winners and applicants that scored above the thresholds in either safety or health and wellness—or both—was followed, starting with at least five companies on the first trading day in January 2001. The hypothetical portfolios were then re-balanced "annually" on the first trading day in July that would have occurred in each of the studied years of 1997 to 2014 to coincide with the announcement of new CHAA award recipients. New high-scoring companies were added during the rebalancing of investments. In some years, more than one company was added. In other years, no new company scored high enough to be included. The investment portfolio ended on the last day of trading in 2014.

Several companies received the CHAA more than once. When companies scored a second or third time with a qualifying value, that is, above 175 in health and wellness and 350 in safety, the portfolio doubled or tripled its investment in them and maintained that "over-weighting" for the remainder of the study.

In addition, companies that were included in a portfolio but were subsequently acquired by other companies were eliminated from that portfolio on the last trading day of the June before the transaction and just before adding new high-scoring companies and re-balancing the portfolios. Finally, dividends were re-invested quarterly in both the S&P control portfolio and the customized portfolios. It should be noted that applicants who scored high in either safety or health and wellness but not high enough in both to receive the CHAA were included in the respective portfolios but are not disclosed in this paper.[i]

RESULTS

In the first portfolio, 16 companies achieving a score greater than 175 in the health and wellness category were compared to the S&P (Table 2). From 2001 through 2014, the portfolio's return was 333% compared with the S&P, which had a return of 105% during the same period (Figure 2). It is important to note that three companies were doubly invested because they achieved a rating of greater than 175 in two separate CHAA applications. Because applicants that participate in, but do not receive, the CHAA are not publicly identified; their entries in Tables 2, 3, and 4 are listed as "Company A or B."

We then looked at companies that scored 200 or higher in the health and wellness category and compared their earnings to the S&P. Of the 16 in the previous portfolio, only 11 of these companies were in the second portfolio. The earnings level during the period 2001 and 2014 for these companies was 204%, compared with the S&P performance of 105%.

Next, we looked at companies that scored above 350 in the safety category and compared their earnings with the S&P (Table 3). These companies outperformed the S&P and achieved a return of 314%, versus the S&P's 105% (Figure 3). In this category, four companies were doubly invested, that is, they achieved a rating of greater than 350 in two separate CHAA applications. One company was triply invested, having achieved a ranking of greater than 350 in safety over three CHAA applications.

[i] Companies that enter the CHAA but do not receive an award are informed that their entry into the competition will not be disclosed publicly. This is in keeping with the aim of the CHAA to provide feedback from reviewers to promote quality improvement and to allow companies to re-apply at a later date.

TABLE 2. Companies With a >175 in Health and Wellness Category

Lockheed Martin (1997)	Kerr-McGee Corporation (2002)
Johnson & Johnson (1998)*	BAE Systems (2003)
International Business Machines (IBM) (1998)*	Marathon Oil Corporation (2003)
Boeing Company (1998)	Union Pacific Railroad (2003)
Glaxo Wellcome Inc (1999)	Company A (2003)*
Dow Chemical Company (2000)	DaimlerChrysler Corporation (2004)
Company A (2001)*	Caterpillar (2005)
International Business Machines (IBM) (2002)*	Johnson & Johnson (JNJ) (2012)*
Bristol-Myers Squibb Company (2002)	American Express (2013)
Eli Lilly and Company (2002)	

2001–2014 Total Portfolio Return 333% vs S&P 500 105%.
*Doubly invested.

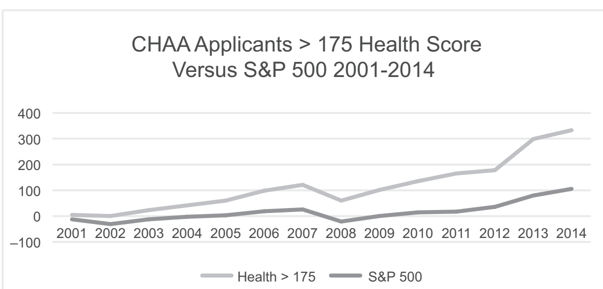

FIGURE 2. CHAA applicants with a health score >175 versus S&P 500.

A fourth portfolio was developed that encompassed companies with safety scores greater than 400. There were a total of 12 companies in this portfolio and their earnings for the 2001 to 2014 period were 319%, compared with the S&P earnings of 105%.

The final two portfolios we developed examined combined safety and health and wellness scores as follows.

Portfolio 5 included CHAA applicants with a health score of greater than 175 and a safety score greater than 350. There were a total of 16 companies in Portfolio 5 (Table 4).

TABLE 3. Companies With a Safety Score >350

Lockheed Martin (1997)	Eli Lilly and Company (2002)
Boeing Company (1998)	BAE Systems (2003)
Johnson & Johnson (1998)*	Marathon Oil Corporation (2003)
International Business Machines (IBM) (1998)†	Union Pacific Railroad (2003)
Glaxo Wellcome Inc (1999)	Company A (2004)*
Dow Chemical Company (2000)	DaimlerChrysler Corporation (2005)
Company A (2001)*	IBM (2007)†
Company B (2001)	Caterpillar (2007)
International Business Machines (IBM) (2002)†	URS Corporation (2011)
Bristol-Myers Squibb Company (2002)	Johnson & Johnson (JNJ) (2012)*
Kerr-McGee Corporation (2002)	American Express (2013)

2001–2014 Total Portfolio Return 314% vs S&P 500 105%.
*Doubly invested.
†Triply invested.

TABLE 4. Companies With a Health Score >175 and Safety Score >350

Lockheed Martin (1997)	Eli Lilly and Company (2002)
Johnson & Johnson (1998)*	Kerr-McGee Corporation (2002)
International Business Machines (1998)*	BAE Systems (2003)
Boeing Company (1998)	Marathon Oil Corporation (2003)
Glaxo Wellcome Inc (1999)	Union Pacific Railroad (2003)
Dow Chemical Company (2000)	Company A (2004)*
Company A (2001)*	DaimlerChrysler Corporation (2005)
International Business Machines (2002)*	Caterpillar (2007)
Bristol-Myers Squibb Company (2002)	Johnson & Johnson (2012)*
	American Express (2013)

2001–2014 Total Portfolio Return 333% vs S&P 500 105%.
*Doubly invested.

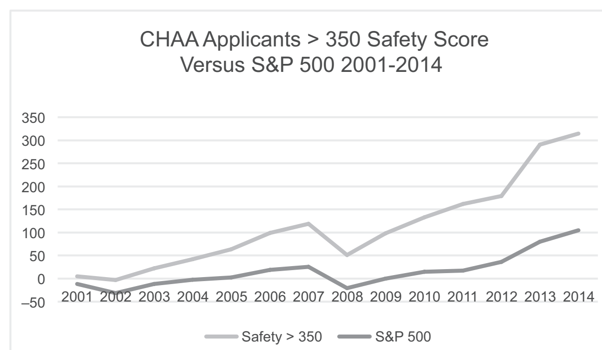

FIGURE 3. Performance of companies with a CHAA safety score >350 versus S&P 500.

Portfolio 6 contained those CHAA applicants that achieved a health score greater than 200 and a safety score higher than 400. Ten companies were included in Portfolio 6.

The return on investment for Portfolio 5 was 333% (Figure 4) and Portfolio 6 achieved a return of 279% compared with the S&P return of 105% during the same period. Table 5 reports the performance of all six portfolios in the study (Figure 5).

DISCUSSION

The results provide evidence that the stock appreciation of companies that are recognized for excellence in health and wellness,

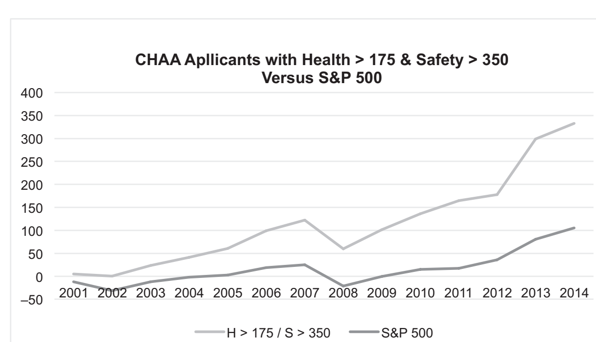

FIGURE 4. Performance of companies with a CHAA health score >175 and safety score >350 versus S&P 500.

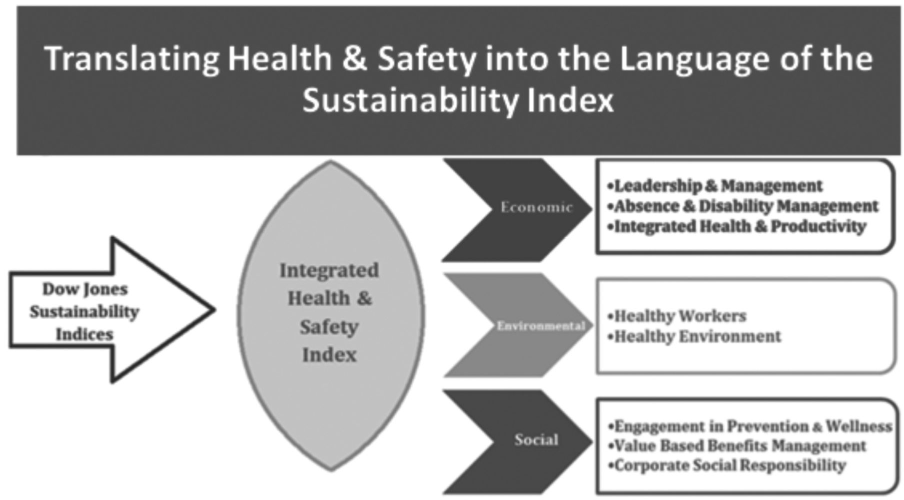

FIGURE 5. Translating health and safety to a sustainability index.[8]

safety, or both, outperforms that of other companies that have not been so recognized. Although they did not tease out the contributions that may have been made on other dimensions on which these companies may also have excelled, these results are consistent with—and augment—the growing body of work that is associating excellence in health, wellness, and safety with superior financial performance in the marketplace. When we deconstructed the CHAA process and established portfolios among the applicants and award winners that achieved threshold scores in either health or safety as well as threshold scores in both, they all outperformed other companies, using the S&P 500 standard index as a measure. There was a considerable overlap among the portfolios and the difference between them may be only a few companies. This may explain why the portfolio using a threshold of 175 in the health scoring outperformed the portfolio with a threshold of 200 and therefore the stock performance was not linear to the health score. The few companies that dropped out were high performing. This study suggests that a health and wellness score of 175 and a safety score of 400 should be recognized as thresholds going forward, as they correlated with the highest stock performance. However, when evaluating their combined performance, a safety score of 350 and a health and wellness score of 175 should be used.

There is increasing evidence that companies that integrate their health and safety efforts, building a culture of health and wellness along with a culture of safety, are likely to have a competitive advantage in the marketplace.[7,8,12–17] This information should become increasingly important to corporate leadership and the investment community. Although there is ample evidence that a healthy and safe workforce can tangibly contribute to the bottom line of most self-insured midsized and large employers, demonstrated causality may not be necessary to inform investors. For an investment community that is consistently seeking new correlations to inform their strategies, the results of this paper may be sufficient to attract their attention. Perhaps this paper can provide a stepping stone to a future where elements of the CHAA process are incorporated into a much larger list of assessment metrics that the investment community already uses to inform its decisions.

A recently published paper by Loeppke et al[8] emphasized the importance of integrating health promotion and health protection. This paper suggests that the CHAA assessment process should be realigned to follow the format of the DJSI. The CHAA's current categories of measurement would be converted to mirror the DJSI's categories, which include economic, environmental, and social metrics. This would result in an Integrated Health and Safety Index (HIS).

Imagine a future scenario in which employers of sufficient size would be required or encouraged to publicly report on the degree to which they have achieved a culture of integrated health and safety. Those that report high Integrated Health and Safety Index scores could potentially be rewarded in the marketplace with greater investment as well as premium cost-reductions for group health and/or workers' compensation insurance. This would provide a major incentive for more companies to focus on the health and safety of their workforces and markedly aid in addressing many of the factors that are driving the American health care crisis—including the rise of chronic disease. If enough companies were able to improve and sustain the health status of their workforces, it could impact millions of Americans, providing a national tipping point in our effort to improve health outcomes and lower costs. The data in this paper suggest that such an effort might also contribute to investment-oriented opportunities and company differentiation in the marketplace.

LIMITATIONS

This study presents the correlation between healthy and safe workforces and market performance, but it does not imply

TABLE 5. Performance Comparison of All Portfolios

Portfolio	Active Return	Performance Difference	S&P
Health >175	333%	208%	105%
Health >200	204%	99%	105%
Safety >350	314%	209%	105%
Safety >400	319%	214%	105%
Health & Safety >175/300	333%	228%	105%
Health & Safety >200/400	279%	174%	105%

causation. We recognize that many additional factors are required for companies to out-perform others in the stock market, including efficient production, product development, quality management, marketing and sales, and customer service, among others. For this reason, it is difficult to determine whether companies that emphasize the health and safety of their workforce are companies that also do many other important things right or whether these healthy workforces make it possible for companies do many other things right.

All portfolios consisted of only a few companies at any one time, from 5 to 22, which may allow outliers to influence the results. This study was only able to include those companies with high safety and health and wellness scores that were publicly traded, eliminating approximately 15% of companies that were privately held. Lastly, all portfolios had a considerable overlap—holding many companies in common—making differentiation difficult.

FUTURE RESEARCH

To further clarify the influence that health and safety programs have on stock performance, it may be worth comparing CHAA recipients to the average performance of similar companies in their particular sector or to conduct a comparison study against key competitors that are not CHAA recipients. This would control for the impact of high-performing business sectors. As the number of CHAA applicants increase, it should be possible to create portfolios deconstruct the assessment process further in order to determine which elements scored have the greatest influence on the ability of a company to outperform, I as identified in this study. Lastly, it may possible to compare the stock performance of a group of non-CHAA companies that perform well in other business measures (product development, marketing, and so on) with CHAA companies that have also performed well in these other measures—focusing on the health and safety of their workforces to determine the additional impact this effort can have on marketplace performance.

CONCLUSION

This study adds to the growing evidence that a healthy and safe workforce correlates with a company's performance and its ability to provide positive returns to shareholders. Moreover, this study demonstrates that employers that include in their approach to workforce productivity significant investments in the health and/or safety of their employees outperform the S&P 500 in the marketplace. Specifically, it shows that companies that achieve a threshold of 175 in health and 350 in safety in the CHAA rating system perform well in the marketplace.

These results suggest that there should be significant interest in employers utilizing the newly proposed IHS Index—developed as a next-generation enhancement to the CHAA and consistent with the economic, environmental, and social domains of the DJSI—as an important index of metrics that can correlate with financial performance.[8] Just as investors use the DJSI to distinguish organizations that operate in an ethical manner with an emphasis on long-term performance, they could use the IHS Index to assess an employer's commitment to workforce health and safety as they build portfolios of sustainable companies.

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