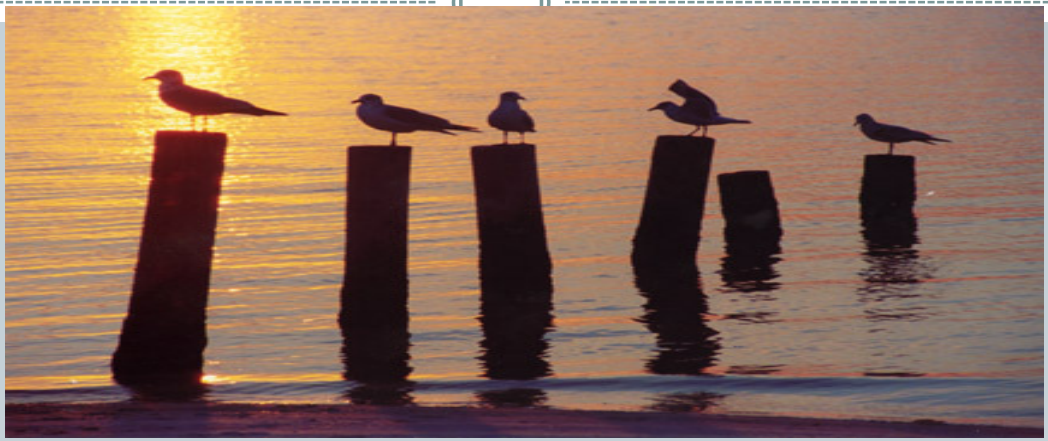
A Global Corporate Sustainability Model



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Executive Summary

- Improving Sustainability a Corporate Objective
- Corporate Knights Research Group (CKRG)identified the top 100 “most sustainable companies” in 2010.
- This paper reports on a regression model that was developed to identify independent variables for success in sustainability.
- The model explains approximately 50% of the variability in sustainability.

Background

- Corporate perception of sustainability
  - Potential to lose competitive advantage
  - Disadvantage compare to rivals in developing countries
  - Add to cost
  - Will not deliver immediate benefits
- The Reality Is…
  - Lead to lower cost
  - Became more efficient
  - Increased revenue

Background

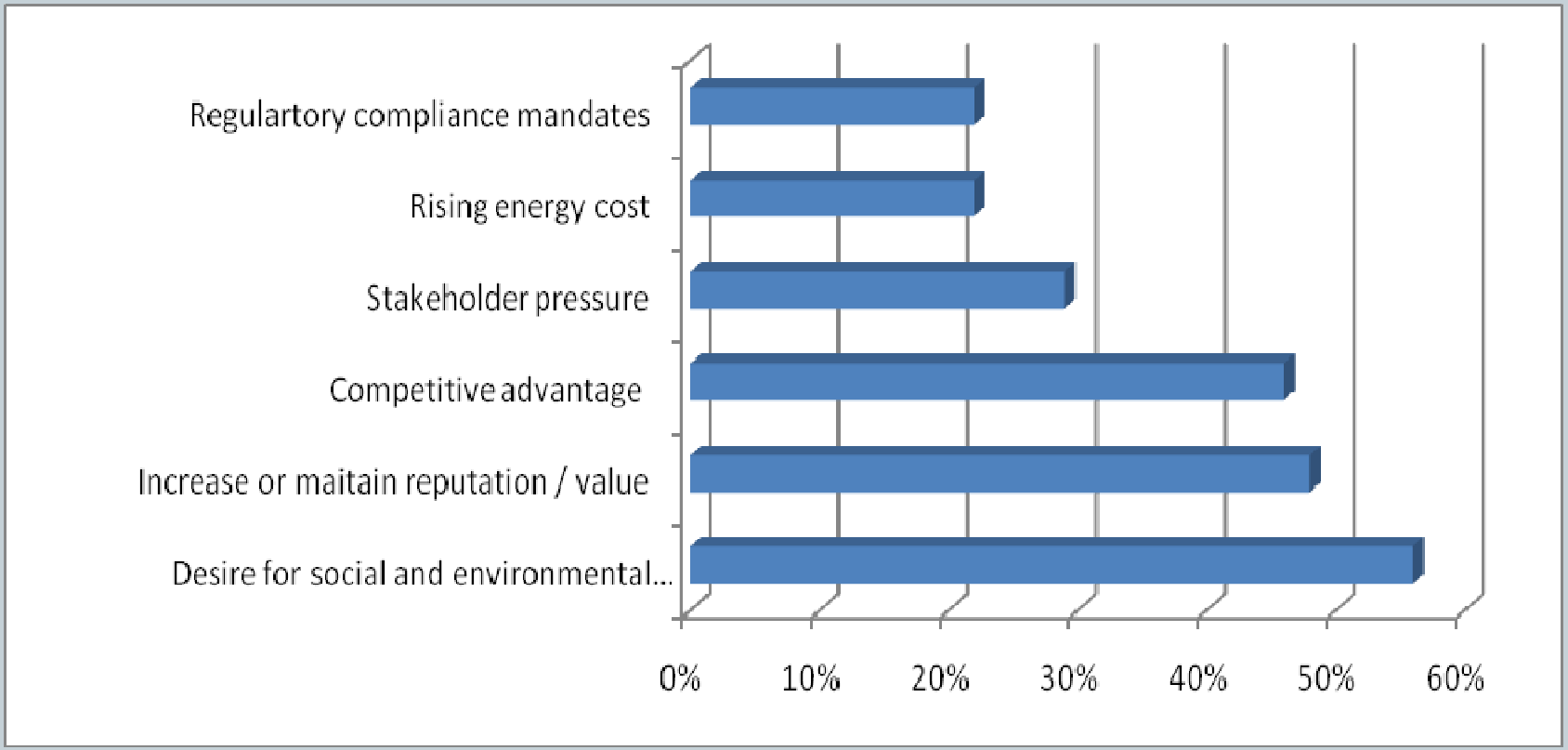
- Firms are seeking ways to improve sustainability
- To be considered a “sustainable company,” the most notable factor is to operate without leaving a significant footprint on the environment.
- Some studies have been conducted to identify variables that contribute to sustainability.
- One variable that has been identified is diversity.

Background

- *Steps to Improving Sustainability*
  - **Step 1: View compliance as an opportunity**
  - **Step 2: Make value chains sustainable**
    - e.g. convince suppliers to become more eco-friendly
  - **Step 3: Design sustainable products or services**
    - e.g. eco-friendly packaging
  - **Step 4: Develop innovative business models**
  - **Step 5: Create next-practice platforms**
    - e.g. technologies that allow use of by-products

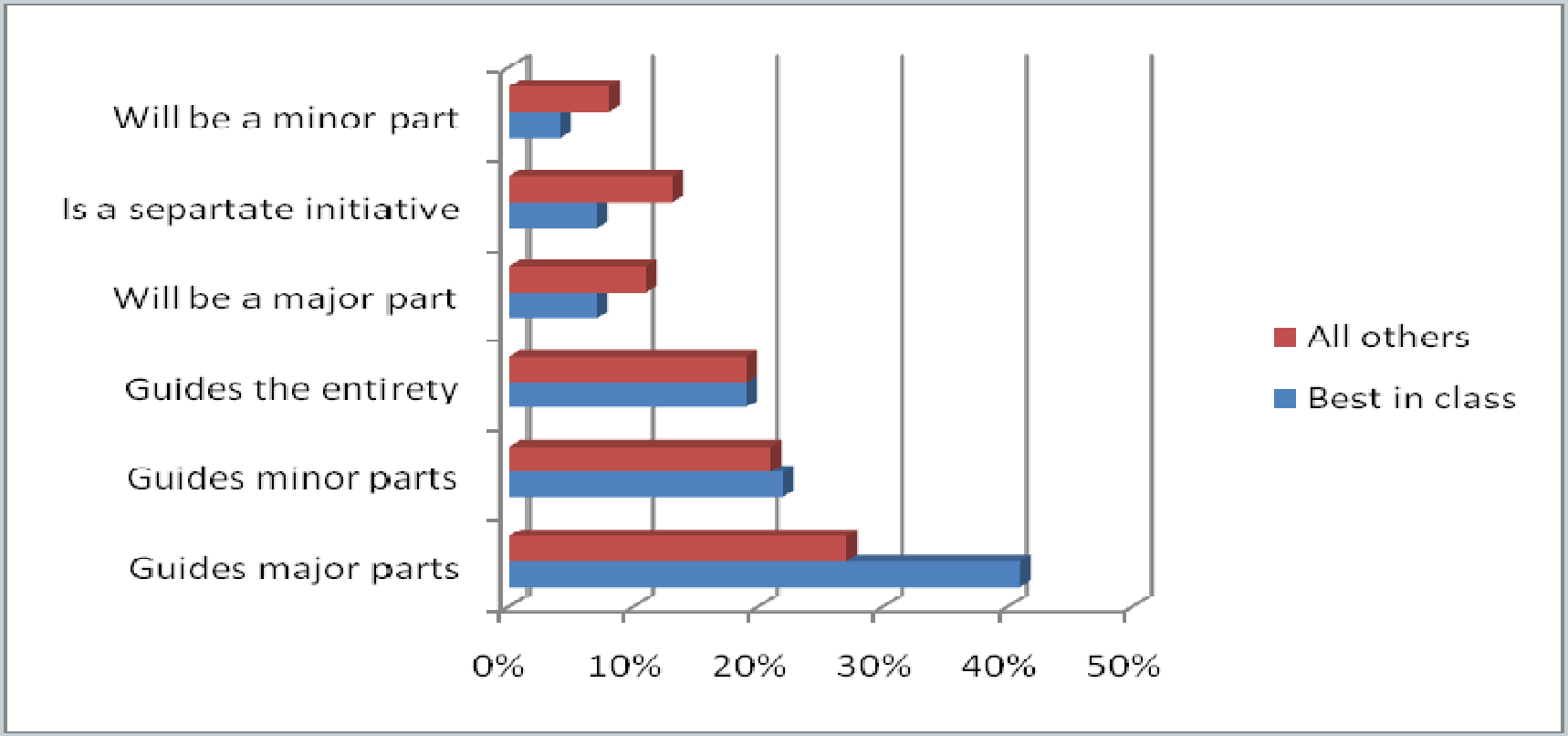
Background

- *Pressures Driving Sustainability*



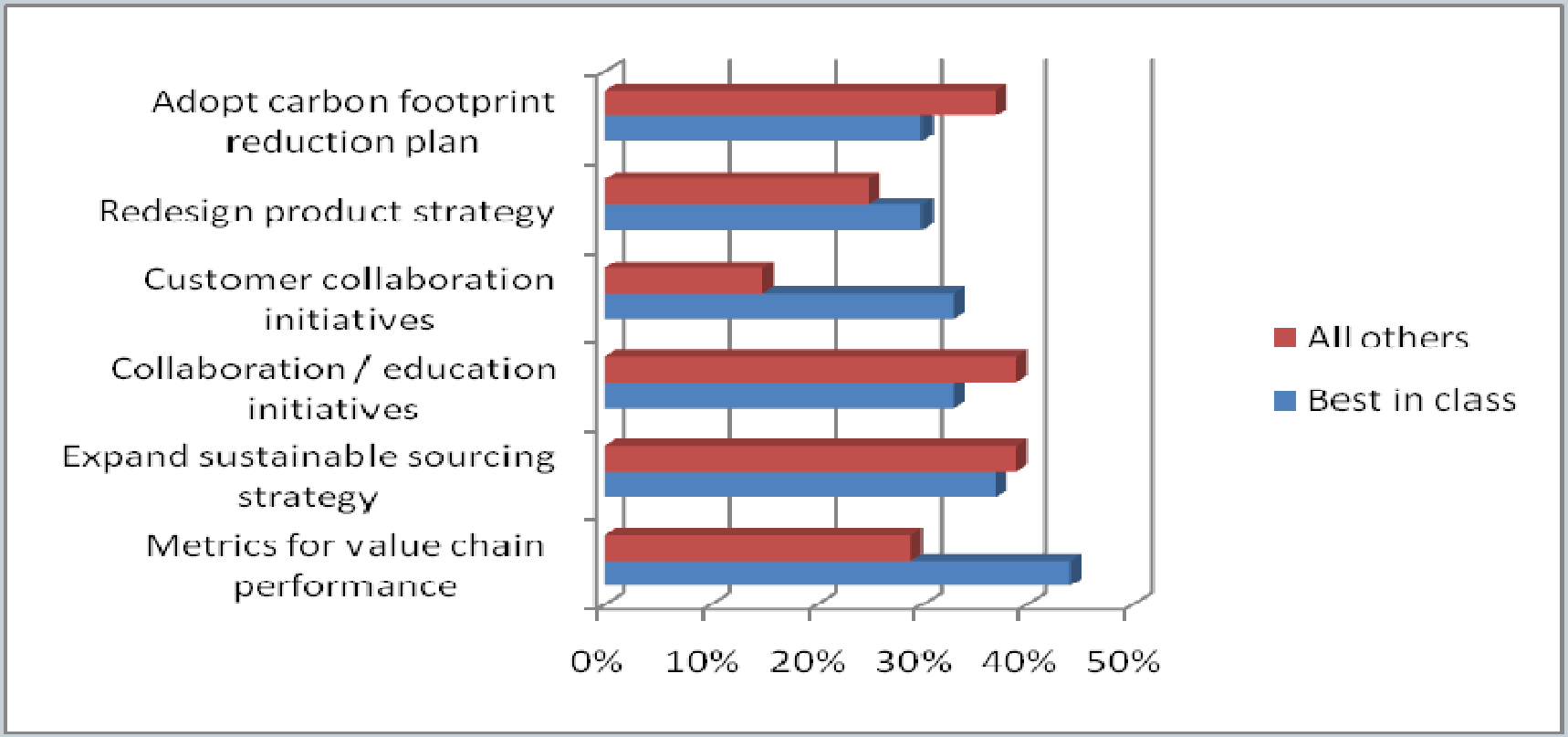
Background

- *Role in Corporate Strategy*



Background

- *Strategic Actions*

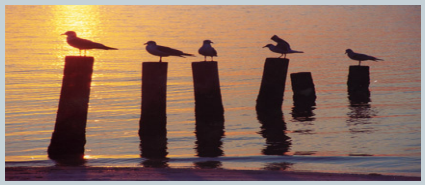


Problem Statement/ Hypotheses

- *Null Hypothesis:* There is no relationship between firms that are ranked as sustainability leaders and the following factors: (1) leadership diversity; (2) Industry Group Percentile (IGP) based on waste productivity; (3) IGP based on water productivity; (4) IGP based on energy productivity; (5) sustainability leadership; (6) IGP based on carbon productivity; (7) percent tax paid in cash; and (8) sustainability remuneration.

Problem Statement/ Hypotheses

- *Alternative Hypothesis:* There is a relationship between firms that are ranked as sustainability leaders and the following factors: (1) leadership diversity; (2) Industry Group Percentile (IGP) based on waste productivity; (3) IGP based on water productivity; (4) IGP based on energy productivity; (5) sustainability leadership; (6) IGP based on carbon productivity; (7) percent tax paid in cash; and (8) sustainability remuneration.



Research Design and Methodology

- Data from the CKRG of the 100 top ranked sustainable organizations was employed.
- Data was collected relating to potential independent variables for the organizations above.
- For the analysis, 9 independent variables were identified for consideration and testing.

Initial Potential Independent Variables

- *Energy Productivity** (US$) –Sales (US$) / Total direct and indirect energy consumption in gigajoules.
- *Carbon Productivity** (US$) - Sales (US$) / Total CO2 and CO2 equivalents emissions in tons.
- *Water Used** (US$) - Sales (US$) / Total water use in cubic meters.
- *Waste Productivity** (US$) - Sales (US$) / Total amount of waste produced in tons.
- *Leadership Diversity* - % of women on the board.

* Industry Group Percentile was used to better normalize this variable within the various industries investigated.

Initial Potential Independent Variables

- *Sustainability Leadership-* a weighted discrete variable based on: (1) if a sustainability committee existed; and (2) whether a director was on it.
- *Sustainability Remuneration* – whether at least one senior officer has his/her pay linked to sustainability.
- *% Tax* - % of tax obligation to the government paid in cash
- *Transparency* - % of data points on which the company provided data.

Initial Regression Model

- The initial *regression equation* was:

  Rest = b0 + b1IGPEP+ b2IGPCP + b3IGPWP
  + b4IGPWasP + b5LD + b6PTP + b7SL
  + b8T + b9SR

- Where Rest is estimated rank, b0 is the constant, and bi is the estimated coefficient on the i^{th} independent variable, and IGPEP is industry group percentile energy productivity, etc.

Regression Test

- A backward elimination stepwise regression was used to generate the final regression equation .
- Final regression equation contained only those independent variables having estimated regression coefficients with p-values less than 0.10.
- Rejected the null hypothesis for each variable that entered based on these tests.

Model Results

- Six variable model resulted (3 variables left out).
- First variable to enter the model was leadership diversity (p value of .006.)
- Second variable to enter was IGP for waste productivity, followed by IGP for water productivity.
- Last three independent variables to enter were sustainability leadership, IGP for energy productivity and percent tax paid in cash

Model Results

- Four of the variables were significant at a 1% level.
- Two other variables were significant at the 5% and 10% level respectively.
- All coefficient signs were intuitively correct except the 5th variable to enter (IGP for energy productivity).
- R- squared was 49.6% indicating that roughly ½ of the variability in sustainability success was explained by the model.
- A four variable model would produce 40%

Conclusions

- Reject the null hypothesis for 6 variables; accept the alternative hypothesis for these 6 variables.
- The six variables were: board leadership, IGP for waste productivity, IGP for water productivity, IGP for sustainability leadership, IGP for energy productivity, and per cent tax paid in cash.
- Half of the variability of Sustainable Success may well be explained by these 6 independent variables.
- Of the 6 variables remaining in the stepwise regression equation, board diversity had the least potential for Type 1 Error (P-value of 0.00)

Recommendations

A firm's leadership should consider the following:

- Create gender and more racially diverse boards
- Focus attention on waste, water, and energy productivity.
- Ensure that a sustainability committee exists in the corporation and that at least one of the Board of Directors sits on the committee.
- Invest in sustainable business practices
- Let shareholders and customers know that they embrace sustainability in a major way

Recommendations

- Independent variables found to be significant need further research.
- In coming years there will be data available to conduct more in-depth, longitudinal surveys.
- The positive sign that was counterintuitive in IGP for Energy Productivity needs further research.
- Further research should be conducted on the relationship of other diversity factors (besides women on the Board of Directors) on sustainability success.

Questions?