AdvancedEnvironmentalDimensions

Independent Investment Research on Environmental Liability

Why environmental liability

is relevant to debt and equity investment decisions

Information that's not in the market

- ***The combined effect of two market errors can lead to material over valuation*:**
  - Market Error No. 1: Unreliable GAAP disclosures can lead investors to incorrectly forecast the timing and amount of future cash outflows necessary to resolve long-term environmental liability.
  - Market Error No. 2: An incomplete understanding of the nature of environmental liability can lead investors to incorrectly discount future cash outflows.

Market Error No. 1 – Forecasting

- **<u>Timing</u> – Markets may underestimate the period of time over which cash outlays will continue (payout period).**
  - GAAP data often suggests a payout period of less than 5 years.
  - Historical analysis, however, may indicate that the payout period will run decades, if not into perpetuity.
- **<u>Amount</u> - GAAP estimates often grossly understate the amount necessary to fully resolve liability.**
  - Annual cash expenditures may continue for decades, if not into perpetuity, at constant amounts adjusted for inflation.

Market Error No. 2 – Discounting

- **Investors may fail to recognize the special nature of remediation expenditures and thus fail to discount these cash outflows at lower rates than normal business revenues and expenses.**
- **Use of a risk-free real interest rate reflects the true nature of environmental cleanup costs:**
  - Non-discretionary, mandated by law, subject to regulatory enforcement
  - Akin to fixed costs rather than variable costs
  - Contaminated assets cannot be sold without offset for the associated liability
  - Statutory strict, joint and several, non-transferrable liability
  - Materiality increases as a company's financial condition weakens
  - Often cannot be discharged in bankruptcy

Objective, Quantitative Research

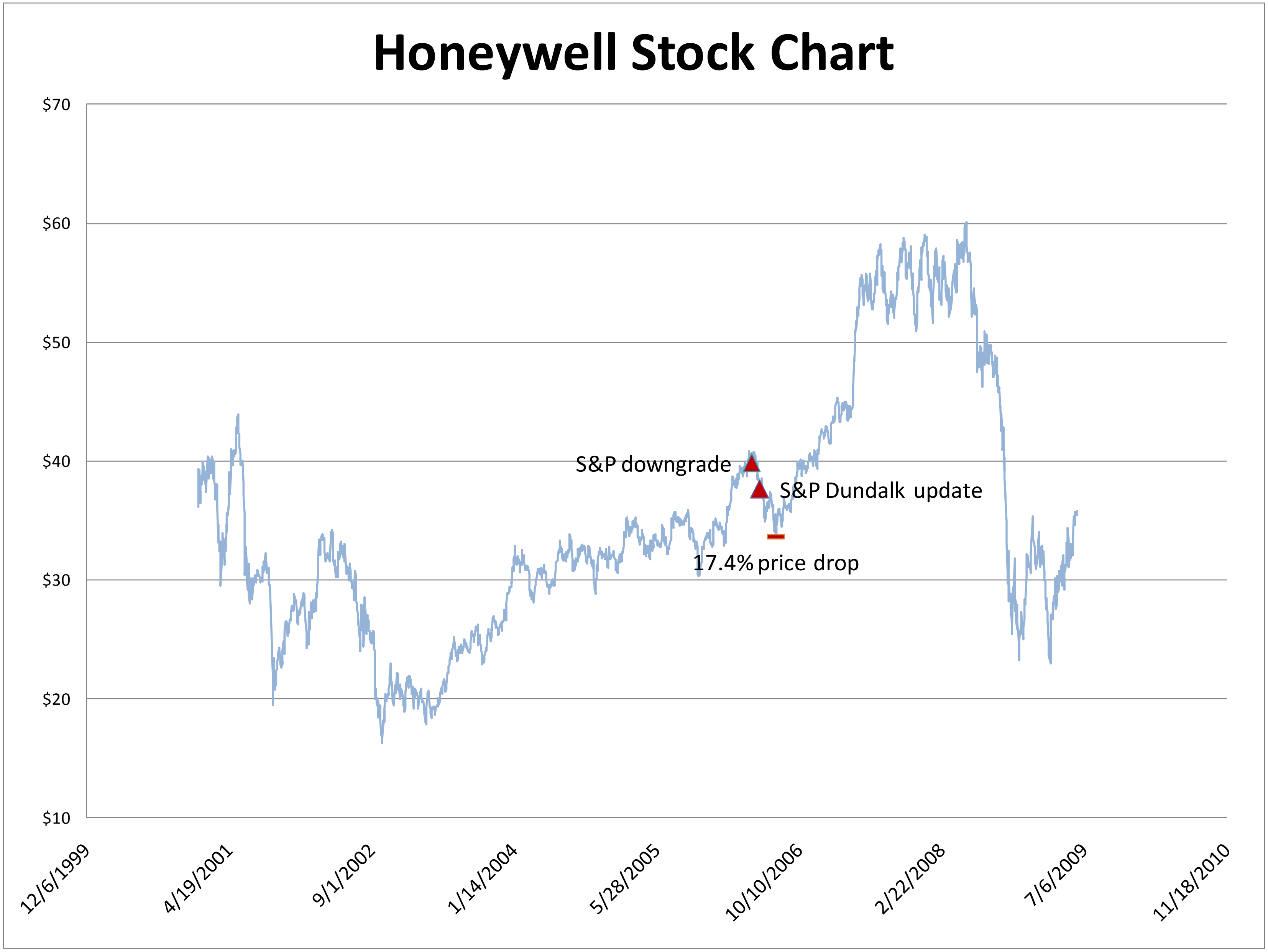
- **A 2008 study of environmental liability of 24 companies in the energy and chemical industries showed:**
  - Accounting estimates were almost universally unreliable.
  - Estimates of unquantified liability ranged from zero to over six times reported estimates.
  - Estimated unquantified liability exceeded 5.0 percent of total equity for nearly two-thirds of the study group.
  - Expenditures were highly consistent and predictable.
  - Strong evidence of the influence of management bias.

Case Example No. 1 – Exxon (XOM)

- **Reported environmental liability reserves:**
  - 2004 - $643 million
  - 2005 - $849 million
  - 2006 - $864 million
  - 2007 - $916 million
  - 2008 - $884 million
  - 2009 - $943 million
- ***Discounting forecasted cash flows at 0.9% produces a liability estimate of $55 billion, approximately 16% of XOM's market cap.***

Case Example No. 2 – Honeywell (HON)

- **In April 2006 JPMorgan downgraded HON based on concerns around legacy environmental liabilities.**
- **The downgrade followed HON's announcement of unfavorable circumstances surrounding the Dundalk Marine Terminal in the Baltimore Inner Harbor.**
- **Honeywell's market capitalization dropped $6B over the next three months before recovering.**
- ***Discounting forecasted cash flows at 0.9% produces a liability estimate of $9.5 billion, approximately 18% of HON's market cap.***



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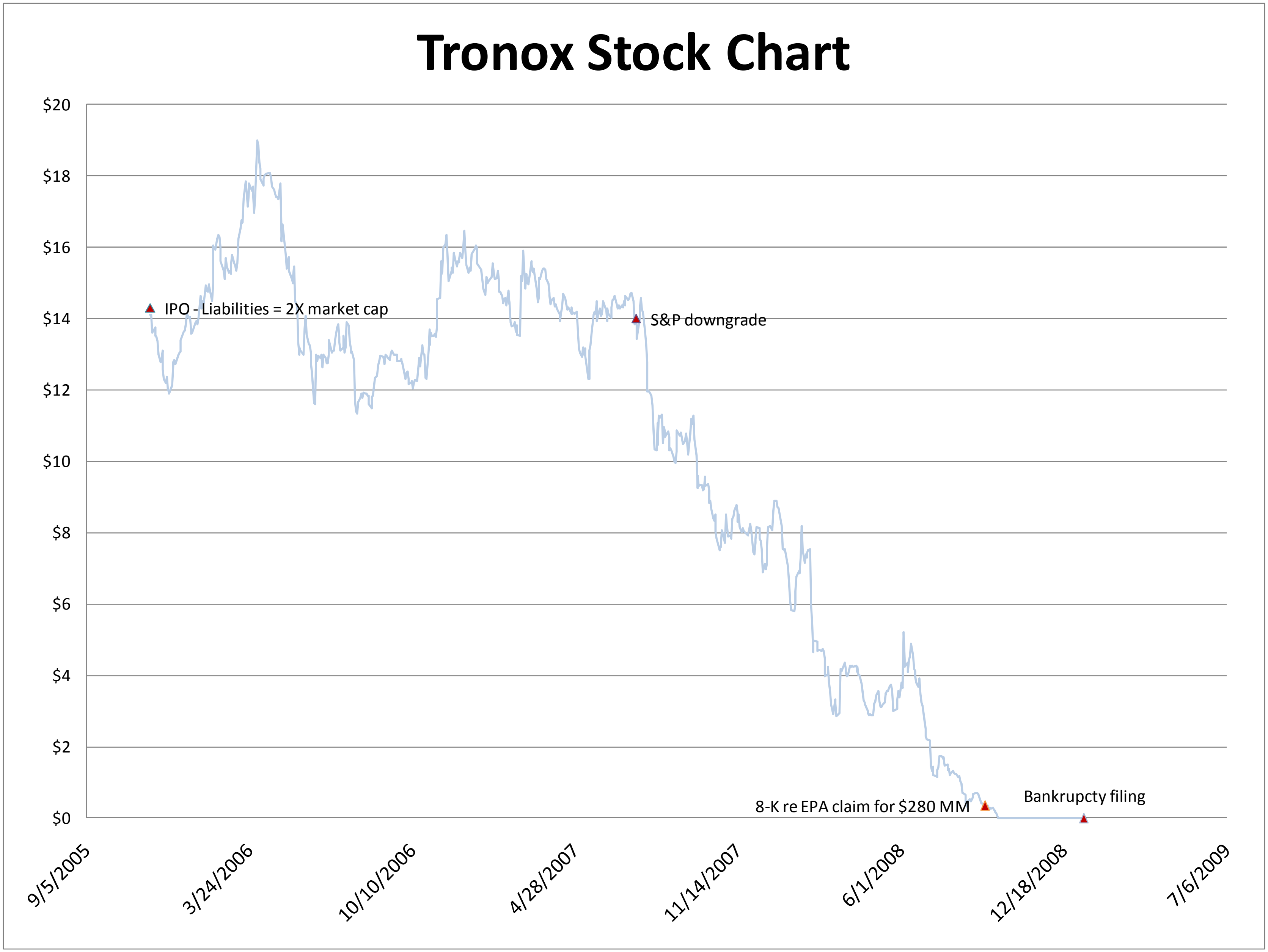
Case Example No. 3 – Tronox (TRX)

- **November 2005 – IPO spin-off from Kerr-McGee**
  - 12/19/05 S&P rating is BB-
    - "Tronox is exposed to large legacy environmental liabilities …. As of Sept. 30, 2005, the company had environmental reserves of about $239 million to cover expected remediation costs. In addition, Kerr-McGee Corp. has agreed to share 50% of the costs not covered by the reserve up to $100 million over seven years. S&P believes additional reserves may be required to meet future liabilities."
- **September 2008 – TRX discloses EPA claim for $280 million**
- **January 2009 - TRX files bankruptcy**
- **May 2009**
  - TRX admits material off-balance sheet environmental liabilities and non-compliance with GAAP
  - Commencement of fraudulent conveyance litigation based on undisclosed environmental liabilities
- **November 2009 – Commencement of shareholder class action litigation based on undisclosed environmental liabilities**
- ***Contemporaneous analysis would have shown that a better estimate of TRX's reported environmental liabilities as of the IPO was $5 billion, approximately 7X the company's IPO value. TRX reportedly faces an estimated $1.4 - $5.2 billion in environmental claims.***



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About Us

C. Gregory Rogers, J.D., CPA, is President and founder of Advanced Environmental Dimensions, LLC. Mr. Rogers is the leading U.S. expert on environmental accounting and disclosure. He is both a non-practicing CPA (formerly with Arthur Andersen & Co.) and a practicing lawyer with over 20 years' experience. He is past chairman of the American Bar Association's Environmental Disclosure Committee and recognized in *Best Lawyers in America* in the field of environmental law. He is author of numerous published articles on environmental disclosure as well as the leading authoritative text on environmental financial reporting, "Financial Reporting of Environmental Liabilities and Risks after Sarbanes-Oxley" (Wiley, 2005). Mr. Rogers was one of 30 national experts contributing to the U. S. Government Accountability Office (GAO) investigation and report to Congress on Environmental Disclosures (July 2004). For more information, contact us at (214) 454-9409.