



An investigation of regulatory and voluntary environmental capital expenditures

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Abstract

This paper investigates the firm-specific economic consequences of regulatory and voluntary environmental capital expenditures. Using firm-level environmental data, I decompose total environmental capital expenditures into estimates of regulatory and voluntary components. I then examine the relations of regulatory and voluntary environmental capital outlays with future abnormal earnings, stock prices, and stock returns. As predicted, the empirical analysis reveals that regulatory environmental capital expenditures are negatively associated with future abnormal earnings. Moreover, market-based tests indicate that the regulatory component of environmental capital expenditures is negatively priced. Finally, the results suggest that voluntary environmental capital expenditures and regulatory environmental capital expenditures have different firm-specific economic consequences.

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1. Introduction

This paper investigates the firm-specific economic consequences of regulatory and voluntary environmental capital expenditures. Regulatory environmental expenditures are costs incurred to comply with federal, state, and local environmental regulations whereas voluntary environmental expenditures are costs that a firm incurs to exceed compliance (USEPA, 1995a, p. 35). To assess the economic consequences of these two components of environmental capital expenditures, I examine the relations of regulatory and voluntary environmental capital outlays with future abnormal earnings, stock prices and stock returns.

Regulatory environmental capital expenditures are made in response to environmental legislation that is typically command-and-control in nature. Command-and-control based regulations specify the processes that firms should adopt in order to attain the goals of the legislation (Jaffe and Palmer, 1997, p. 610). Consequently, this type of legislation fails to encourage innovation at the firm level and may force firms to construct inefficient pollution control facilities, thereby adversely affecting firm productivity (Barbera and McConnell, 1990, pp. 57–62; Boyd and McClelland, 1999, p. 139). In their annual reports and 10-K disclosures, companies often acknowledge that regulatory environmental capital expenditures fail to produce future economic benefits.¹ In other words, firms claim that capital expenditures to comply with environmental regulations may represent negative net present value projects.² If these claims are true, then I should find that: (a) regulatory environmental capital expenditures (RECAP) are negatively related to future abnormal earnings; and (b) the capital market values these costs as expenses (assuming market efficiency).

Conversely, due to their flexibility, voluntary environmental initiatives may lead to the design of innovative pollution control techniques, resulting in pro-

¹ For example, in its 1999 10-K filing, Kerr McGee states: "...most (regulatory) environmental expenditures provide no significant increases in production capacity, efficiency, or revenue". In its 1990 10-K filing, Temple-Inland acknowledges that capital expenditures made to comply with environmental legislation may adversely affect earnings because these projects "...provide minimal, if any, monetary return on investment, and may divert capital from income producing activities".

² Regulatory environmental capital expenditures can still represent negative NPV projects even though firms may be subject to hefty environmental fines if they do not undertake these capital projects. For instance, if a manager is faced with a new environmental regulation that impose a capital project on the firm, she/he essentially has two choices: compliance (i.e., the firm undertakes the regulatory environmental capital project) or non-compliance (i.e., the firm does not undertake the capital project and possibly incurs environmental fines). In this scenario, the NPV of the regulatory capital project could be negative and still be accepted by the manager because its NPV is closer to zero than the non-compliance alternative.

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