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# Effects of litigation under the Endangered Species Act on forest firm values

Changyou Sun\*, Xianchun Liao

Department of Forestry, Mississippi State University, Mississippi State, MS 39762, USA

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### ABSTRACT

The Endangered Species Act (ESA) has been a source of litigation and subject to court interpretation during the past several decades. In this study, event analysis was employed to examine the impact of six court decisions related to the ESA on the financial performance of U.S. forest products firms. The finding of abnormal returns revealed that all six events generated the expected positive or negative returns, and among them, four were statistically significant. Changes in systematic risk reflected the reaction of the stock market to the verdict announcements. Programs designed for habitat conservation can be implemented to compensate private landowners or firms for costs associated with protecting species on private forestlands.

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### Introduction

The Endangered Species Act (ESA) has been one of the most important pieces of environmental legislation in the United States (Scott et al., 2006). Enacted in 1973, the ESA was designed to protect species that are endangered or threatened throughout all or a major portion of their ranges, and to conserve the ecosystems on which they depend. Since the passage, the ESA has set biodiversity conservation policy on a path that emphasizes species-based conservation in the United States. Under the ESA, no person may take (e.g., harass, harm, wound, kill) any listed species without special permission (Mehmood and Zhang, 2001). Over the past four decades, the number of listed endangered species has increased steadily. There are currently 1163 animals and 796 plants in the United States

\* Corresponding author. Tel.: +1 662 325 7271; fax: +1 662 325 8726.

E-mail address: [csun@cfr.msstate.edu](mailto:csun@cfr.msstate.edu) (C. Sun).

listed as endangered or threatened species on the Web site of U.S. Fish and Wildlife Service (U.S. FWS, 2010). Approximately 40% of the listed species are estimated to have populations that are stable or improving. To date, over 10 species have fully recovered so they were delisted.

The ESA has been at the center of debates of how to balance environment protection and economic development for years. At the time of passage, most people were not aware that the law would raise questions over such a broad range of economic activities, e.g., irrigation and dam building, mining, and timber harvesting. Over the past several decades, the ESA has been used to initiate numerous lawsuits and in some regions it has resulted in severe restrictions on land management activities and uses. In particular, since forestlands are the primary habitat for many listed species, both public and private forest landowners have faced increasing uncertainties in managing their lands and harvesting timber.

Public forest management agencies and forest products firms have been the primary target of environmental groups seeking protection of endangered and threatened species through the ESA. They own a large portion of forestlands in the United States. In 2002, the public (e.g., U.S. Forest Service) owned 29% of total forestlands, forest products firms owned 13%, and nonindustrial private forest landowners owned 58%; and they accounted for 8%, 29%, and 63% of the timber harvested in the United States, respectively (Smith et al., 2004). Most of the public forestlands in the United States are located in the West. The protection of the northern spotted owl in the Pacific Northwest resulted in at least a 70% reduction in timber harvesting from public forestlands in the region since 1989 (Murray and Wear, 1998). Many forest products firms have been publicly traded and vertically integrated with both forestlands and manufacturing facilities. Environmental protection has generated constant pressure on these firms to maintain profitability and manage green images simultaneously.

Forest products firms that are publicly traded can be influenced not only by lawsuits in which they are directly involved, but also by court decisions on other firms in the industry. Environmental groups often identify a species and initiate a lawsuit with the objective of winning the litigation and establishing a precedent for other firms. As a result of this leverage strategy and spillover effect, verdicts from influential lawsuits can have larger spatial and temporal consequences. For example, protection of spotted owl in the West since 1989 has generated great pressure on both industrial and nonindustrial private forest landowners in the South because of the existence of the red-cockaded woodpecker in the region (Zhang and Flick, 2001). Southern landowners have been anxious about how to protect this and other listed species, and at the same time, to achieve sustainable growth of their forests and businesses.

Past studies have analyzed the impact of environment regulations and related events on the financial performance of forest products firms. Event analysis has been a widely used tool to address these concerns because of its power in exploring linkages between events and firm values. MacKinlay (1997) and Binder (1998) provided an extensive review of the event analysis literature. In general, event analysis has been used to examine security price behavior as affected by events such as accounting rule changes, earnings announcements, changes in regulation, and money supply announcements. Application of the method in forest economics has also been increasing (e.g., Zhang and Binkley, 1995; Rucker et al., 2005; Niquidet, 2008). In particular, Rucker et al. (2005) utilized event analysis techniques to develop a distributional event response model which analyzed the effect of ESA cases on lumber futures prices. Events identified in Rucker et al. (2005) were litigation verdicts related to the ESA on public lands. There is, however, a need to examine the impact of ESA-related litigation events involving private forestlands on the financial performance of forest products firms.

The objective of this study was to examine the effect of court decisions related to the ESA on financial returns and risks for forest products firms in the United States. Six cases decided after 1990 were selected to represent lawsuits initiated under the ESA and related to forest management activities on private forestlands. Event analysis was employed to measure abnormal returns and risk changes for a group of forest products firms. Fourteen publicly traded forest firms were selected to represent the forest products industry. Event analysis was conducted for each case. In addition, a number of event windows were attempted in evaluating the range of the impacts. The main results were that the forest products firms did respond to court decisions with varying abnormal returns and risk changes. This revealed that protecting endangered and threatened species on forestlands could be costly for the entire forest products sector. Government programs need to be developed to provide landowners subsidies or partially offset their costs.

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