Predicting Patent Litigation

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The odds that a given patent will be litigated are about 1%. In part because they are so low, companies have a hard time determining which patents they need to worry about ex ante or knowing the litigation risk associated with their field of endeavor. Such uncertainty leads to inefficient choices about how to allocate research and development resources and increases the risk of holdup. This article explores the differences between litigated and unlitigated patents and the extent to which these differences can be used to identify patents with a higher chance of litigation. It combines information about the intrinsic characteristics of litigated patents that are known to correlate with patent value with information about the acquired characteristics of a patent, which have to date been the subject of limited study.

These acquired characteristics include changes in ownership of the patent (assignments, transfers, and changes in owner size), continued investment in the patent (reexamination, maintenance fees), securitization of the patent, and citations to the patent. Applying logistic regression techniques to a matched pair set, I find that, in addition to the characteristics known to correlate with patent value, a number of acquired characteristics also correlate with a greater likelihood of litigation. In addition, patents litigated by individuals had significantly different characteristics than patents litigated by practicing and non-practicing companies.

Analysis of the factors in a time-series regression analysis suggests that some higher risk patents may in fact be identified ahead of time. Intrinsic and acquired characteristics of patents based on the first half of their lives were significantly correlated with the patent being litigated during the second half of the patent's life. Patents in the top third of patents ranked by probability of suit represented nearly half of the litigated patents. This suggests that a company’s ability to sift through a multitude of patents, or to identify what technical areas had patents with the highest litigation risk, could be improved. It leaves for further exploration the application of more sophisticated statistical techniques and refined prediction models.