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Dispute the patent, short the stock: Empirical analysis of a new hedge fund strategy

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ABSTRACT

A new US patent legislation, called the America Invents Act, became effective in 2011. The reform strived toward facilitating the patent system. But soon it was also blamed for facilitating immoral third party profits. Urges for revision of the America Invents Act became even louder since hedge fund manager Kyle Bass had publicly outlined his questionable investment strategy: he challenges the validity of important drug patents, while shorting the owner's shares in order to eventually cash out on negative stock movements.

The following questions aroused public interest the most: Does the mere filing of a patent opposition already result in negative stock returns? And is it really possible to earn money following such a strategy? The paper on hand is the first to empirically answer these questions. Event study methodology using three years of data from the United States Patent Trial and Appeal Board was employed.

Findings were that the mere filing of a patent opposition in fact produces statistically significant negative returns. The result is robust with the abnormal return being −30 base points. In addition, multiple linear regression results confirm the conjecture that the higher the importance of the disputed patent, the higher the negative abnormal return on the filing date will be. However, transaction cost simulations prove that this strategy is still highly speculative and cannot be considered a real threat to patent holders or the US intellectual property system. The only ones who should start worrying are the few patent owners who really rely on absolutely unjustified and tenuous patent protection.

1. Introduction

At least since the appearance of the Wall Street Journal article 'New Hedge Fund Strategy: Dispute the Patent, Short the Stock', patent owners have become aware of a likely new threat. In the article, Kyle Bass, the head of a hedge fund called Hayman Capital Management LP, detailed how he challenged the validity of several US pharmaceutical drug patents on behalf of his newly-founded Coalition for Affordable Drugs (Walker and Copeland, 2015, 1).

The idea is to initiate a patent validity review while at the same time shorting the shares of the patent owner. With stock owners worrying that the patent will be declared invalid, stock prices will drop and the hedge fund will cash out. However, Bass claims that his motives do not lie in personal profit but rather in benefiting society at large through destabilizing the pharma producers. He argues that they sell overprized prescription drugs based on unjustified and artificially upheld patent protection (Walker and Copeland, 2015, 2).

Irrelevant of the true motives behind the petition, the following questions arise: Does the mere filing of a patent opposition already result in negative stock returns? And is it really possible to earn money following such a strategy? The paper on hand tries to answer these questions through empirical analysis of the relation between the filing event and the stock price performance of the patent owner. The underlying hypothesis is that the filing itself adversely affects stock returns. Standard event study methodology using three years of data from the United States Patent Trial and Appeal Board (PTAB) is employed.

Findings show that the mere filing of patent oppositions in fact produces statistically significant negative returns in the share prices of the patent owners. Although the statistical significance does not hold over horizons of several days, there are on average consistent negative returns on the filing day itself. In addition, multiple linear regression results suggest that the higher the importance of the disputed patent, the higher the negative abnormal return on the filing date will be. Nonetheless, with an average loss of only 0.3% and additional filing and transaction costs, it cannot be confirmed that the strategy of disputing a patent to gain on stock price movements is profitable.

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The study is structured as follows: Section 2 outlines the process of filing patent oppositions in the United States. Section 3 elaborates the hypotheses based upon a short literature review. Data and methodology used to test the hypothesis are described in Section 4. The results are presented in Section 5 and Section 6 summarizes and draws conclusions.

2. Patent reviews and invalidations: theoretical background

The United States Patent and Trademark Office (USPTO) receives around 600,000 patent applications a year. On average, roughly half of the applications are granted[1] (USPTO, 2015). These granted patents aim to protect only novel and non-obvious inventions. However, as the average application takes only about 15–20 h of the patent examiner's time, it is estimated that a substantial portion of granted patents can be considered invalid (Farrell and Shapiro, 2008, 1347). In comparison, the average grant rate of the European Patent Office (EPO) is well below 50%.[2] Patent examination procedures of the USPTO are also said to be less stringent. Yet this lack of examination at the patent application stage is compensated for by several opportunities to challenge the patent validity post-grant (Schliessler, 2015, 2).

In the United States, validity can be challenged either in court or in front of the administrative agency, the USPTO. Up until 2011, litigation in US federal courts was the predominant channel to reassess patent validity. The majority of patents which were declared invalid resulted from infringement trials. An infringement trial implied that the patent owner accused the defendant of violating his patent. The defendant then questioned the patent validity in response. But also without a potential infringement action, the validity could be challenged in a declaratory judgment suit. However, not only did the US patent system place the legal burden to prove the patent invalidity on the challenger, but the US federal court was also an extremely costly mechanism to test a patent of questionable validity. The average legal costs of a patent lawsuit were estimated to range between 1.6 and 6.0 million USD per side (Graham and Harhoff, 2014, 1650). In addition, trade-offs and information asymmetries caused that a defendant accused of infringement was usually better off arguing for non-infringement rather than arguing for invalidity (Ford, 2013, 73–74). Thus, a patent owner might have lost the trial because the accused product did not fall within the scope of his invention, but he would definitely have left court still owning a valid patent.

And as most academics agreed that upheld invalid patents imposed a significant tax upon industry and technological innovation, a more promising and less costly channel to invalidate patents was urgently required (Ford, 2013, 73–74). This channel was implemented in 2011 in line with a thorough patent reform called the Leahy-Smith America Invents Act (AIA). Previously existing post-grant opposition proceedings were changed significantly with the objective of implementing a cheaper and more efficient litigation alternative. Reviews can now be requested by third parties, they take place in front of the newly created Patent Trial and Appeal Board (PTAB) and decisions need to be rendered within one year, shortening expected time-to-completion considerably (Love and Ambwani, 2014, 96). In addition, it is estimated that the average post-grant opposition costs each party around 75,000 USD, which is still high compared to European patent opposition costs,[3] but only a fraction of the expected US federal court litigation costs (Graham and Harhoff, 2014, 1651).

There are three different types of USPTO-administered post-grant proceedings: Post Grant Reviews (PGR), Covered Business Method Patent Reviews (CBM) and Inter Partes Reviews (IPR). Post grant review petitions need to be submitted within nine months after the publication date of the patent grant. Covered business method patent reviews are an expiring petition type. They are only available to parties who have been accused of infringing a business method patent. In all other cases, inter partes reviews apply. They can be filed for all types of patents and maturities, even for patents granted long before the America Invents Act came into effect. Thus, the vast majority of current PTAB filings consists of inter partes reviews[4] (Ho, 2015, 1534–1535). The only limitation of inter partes reviews is that they do not allow for subject-matter eligibility, whereas post grant reviews do.

Subject-matter eligibility is one of the four basic requirements for patentability. An invention is only patent-eligible if its subject matter is patentable according to the specific patent law of the country. Although the definitions of patentable subject matters differ greatly between legislative systems, the idea behind them is the same. Patents being granted for inventions which are rather abstract in nature should be prevented. The objective is not to inhibit potential subsequent innovation. Typical examples for such unpatentable inventions are physical phenomena, mathematical methods or highly generic programming algorithms (Ford, 2013, 80–81). Further requirements for patentability are usability and full disclosure. Usability requires that at least one practical usage of the patent needs to be known. Disclosure requires that all details of the invention need to be documented in written form and in a definite manner. During the lifetime of the patent, this helps others to determine whether they potentially infringe the patent. And after the lifetime of the patent, this helps others to quickly make use of the invention (Ford, 2013, 79–80). The last requirement is the most important one and also the one at issue in most instances. The grant of a patent requires that the inventor created something meaningfully new. Hence, the invention is not patent-eligible if it has been used or described before or if it was obvious to a person skilled in the art (Ford, 2013, 78–79).

A famous example for extensive validity discussions is patent no. 7,479,949.[5] The inventor of this patent was Steven P. Jobs. The patent was granted in 2009 and was titled 'Touch screen device, method, and graphical user interface for determining commands by applying heuristics'. It belonged to the patent portfolio of Apple Inc and protected the way users can scroll or initiate other actions by swiping the display of a touch-screen device. Based upon this patent, several landmark infringement trials against competitors were instituted. In 2010, the first request for re-examination was filed arguing for non-novelty. In 2012, the USPTO declared all of the patent claims to be invalid on a first-office action. Later on in 2013, they revised the initial decision and again declared the patent valid. Two further re-examinations were filed, but the patent is still upheld until today.

[1] In 2014, the USPTO received 578,802 patent applications and issued 300,678 patents. These figures include utility patents only. No design and plant patents are considered. Official USPTO uncorrected total patent grant share in 2014 was 51%. Uncorrected utility patent grant share in 2014 was 52% (USPTO, 2015).

[2] In 2014, the EPO received 274,174 patent applications and granted 64,613 patents. These figures include EPs as well as PCTs. The unofficial uncorrected grant rate lies at 24% (EPO, 2015).

[3] Estimates of the total cost of an EPO post-grant opposition lie within a range of 7,500 EUR to 45,000 EUR for each party. (Mac Dougall and Hammer, 2009, cited in Graham and Harhoff, 2014, 1651) Cited 75,000 USD for the US apply to the average cost of inter partes patent re-examinations. No cost estimates for inter partes reviews were available.

[4] 1,677 PTAB proceedings were filed in 2014. Thereof, 1,501 are IPRs (89.5%), 173 are CBMs (10.3%) and 3 were PGRs (0.2%) (Lex Machina, 2015).

[5] DocID US20100248323A1. All patent and motion documents are published in the USPTO Public Pair database. It was refrained from listing each single document in the bibliography.