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Introduction

Patent Assertion Entities and Competition Policy

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Patent assertion entities or PAE (known more commonly as patent “trolls”) are a hot topic in antitrust and broader policy circles. This is due to a rapid explosion of PAE activity including increased lawsuits and threats by PAEs to sue (Bessen and Meurer 2014). In the United States, the response to PAEs has been at the level of the antitrust agencies,¹ Congress,² the judiciary,³ and even the President, who stated, “The folks that you’re talking about [PAEs] are a classic example; they don’t actually produce anything themselves. They’re just trying to essentially leverage and hijack somebody else’s idea and see if they can extort some money out of them...”⁴ Developments regarding PAE are emerging globally. This edited book provides an overview of the increasingly global nature of PAE activities in their various forms.

How to deal effectively with PAEs are questions of institutional design. A number of options to ameliorate the current PAE problem present themselves. Some are legislative and some are legal. Given that fundamental legislative changes are not possible, for a subset of PAE related anti-competitive harms, antitrust may be viewed as a second best solution. Within antitrust, not all antitrust tools work equally well. This book identifies areas of understanding of these issues and analyzes recent developments around the world.

Problems regarding PAEs stem initially from malfunctions in the U.S. patent system. Because of how the United States Patent and Trademark Office

¹ MPHJ Technology Investments, LLC, Decision and Order, FTC File No. 142 3003 (March 13, 2015); FTC Comment Request, 79 Fed. Reg. 28,715 (May 19, 2014).

² America Invents Act of 2011, H.R. 1249 (2011).

³ See e.g., *SCM Corp. v. Xerox Corp.*, 645 F.2d 1195 (2d Cir. 1981); *Commil USA, LLC v. Cisco Sys., Inc.*, 135 S.Ct. 1920 (2015).

⁴ See Executive Office of the President, Patent Assertion and U.S. Innovation (2014) available at www.whitehouse.gov/sites/default/files/docs/patent_report.pdf at 2.

(USPTO) works, it has issued too many patents of dubious quality (Lichtman and Lemley 2007). Firms have behaved strategically as a result of this malfunction in the USPTO to leverage weak patents in a way that allows them to exploit opportunities in getting settlements from firms that produce innovation.

PAEs make money from licensing patents that they have acquired or by litigating (or threatening to litigate) against firms that have implemented technology to make and/or sell a product. In this sense, PAEs may be holding out merely for a financial payoff without adding much in terms of commercialization of technology via technology transfer. PAEs also may behave opportunistically when they decide to make their claims (Lemley and Melamed 2016).

A PAE can aggregate intellectual property that provides the PAE the ability to arbitrage the value of the patent to extract a larger settlement from a practicing firm. In this sense, the PAE may be aggressive with its patent enforcement not merely for the current company that it may threaten to sue but to send a signal to future companies as to the need to settle with the PAEs.⁵

PAEs are a subset of non-practicing entities (NPEs). PAEs behave in an opportunistic way to rent seek and hence cause social harm rather than an intermediary role in the market (FTC 2011). PAEs are referred to pejoratively as “trolls.” Not all NPEs behave as PAEs (Merges 2009). There is a pro-competitive story to NPEs. Overall, creating secondary markets are beneficial. By aggregating patents, they reduce the search costs for an individual inventor to locate downstream companies who may not be paying royalties. NPEs also may have more leverage in Fair, Reasonable, and Non-discriminatory (FRAND) negotiations or in extracting settlement that would leave an inventor without sufficient scale and the resource/financial clout that comes with this. Some NPEs play an intermediary purpose in the market. Some patents inventors lack the financial resources and/or management skills to effectively license their inventions. They also may lack financing to enforce their intellectual property rights.

This pro-competitive story is not the type of behavior that raises antitrust concern. Rather, a number of PAE behaviors create the possibility of significant antitrust risk based on anti-competitive behavior. This book examines not those NPEs that serve this market intermediary role but with the subset of NPEs that are PAEs.

⁵ This bears resemblance to the signaling theory models of predatory pricing to deter future entry into the same market, see Milgrom and Roberts (1982) and Fudenberg and Tirole (1986).

The anti-competitive story regarding PAEs is more significant, not merely in theory but in practice. PAEs may increase transaction costs of doing business between upstream and downstream companies. This in turn creates a potentially significant risk to innovation. Scott Morton and Shapiro (2014) recently created an economic model for patent monetization by PAEs. In it they demonstrated that PAEs behave in a way different from operating companies. PAEs reduce competition in two distinct ways. First, they alleged PAEs charge an excessive royalty, which then causes the downstream company to raise prices to consumers. Second, PAEs by extracting profit in excess of the value of the royalty commitment threaten downstream innovation. What occurs is that the downstream firm is unable to receive what should have been its competitive return because that return has shifted to the upstream PAE. As a result, the downstream firm's risk appetite may shift to less innovation because of what is effectively a PAE tax on its business. Overall, the model shows that PAE activities, when taken as a whole, lead to less innovation and greater consumer harm.

In a traditional patent war, two operating companies may have offensive interests and defensive interests. Offensively, an operating company may want to extract the maximum economic value from its patents and may do so via contract or threat of suit. However, defensively, an operating company knows that by bringing such suit, the other operating company can counterattack by filing a counterclaim based on its own patent portfolio.

PAEs are different from operating companies with patent portfolios in that PAEs are not susceptible to the traditional Mutually Assured Destruction (MAD). Since the only value that PAEs derive from their patents is to exploit them via licensing fees rather than to exploit them via innovation, the only thing that PAEs have to lose in a lawsuit is merely the cost of the lawsuit (Chien 2010). This risk asymmetry creates incentives for PAEs to be aggressive in their claims as there is no defensive interest to protect against retaliation. The results for operating companies from this aggressiveness include some situations in which licenses are not offered at all and situations in which the PAEs charge high licensing rates that may exceed what is socially optimal (Gotts and Sher 2012).

Thus far, we have treated all PAEs the same. However, there are different types of PAEs. In Chapter 2 in this book, Lemley and Melamed differentiate across three types of PAEs. Some PAEs strike merely to get a settlement that is low value but is relatively quick and does not require a trial. The motivation for doing so is to get a settlement amount that is less than the amount of going to trial. In a sense, this is the equivalent of a nuisance suit. In the aggregate, such suits can be costly because these suits are based on low value patents and

are used merely as a form of rent extraction against implementers. The general literature of the economics of litigation suggests that this type of behavior is a dead weight loss (Bhagat and Romano 2002).

Some PAEs are what Lemley and Melamed refer to as “lottery ticket trolls,” who take difficult cases with high stakes against established companies in the hopes of a big payout. The third type of PAE is the “mass aggregator”, where the PAE aggregates patents into a portfolio. It is this last category that presents particular antitrust problems in the context of privateering, as Chapter 5 by Sokol discusses. Having described the various types of PAEs, we must now establish the social welfare loss that they create.

Overall, as Chapter 3 by Cohen, Gurun, and Kominers in this volume reveals, the effects of PAE activity in the United States appear to be consumer welfare reducing. This work is complementary to prior empirical work on PAEs. Chien’s survey work finds that many within the tech community, particularly venture capitalists, had been impacted negatively by PAEs (Chien 2013). Indeed most VCs believe that PAEs hurt innovation. The estimates of PAE activity to operating companies in a given year is over \$80 billion (Bessen et al. 2011). This does not include the increased friction for deals that PAEs may implicate as increased business risk due to PAEs may be expressed in non-price terms of a particular counteract such as in indemnification provisions to the contract (Chien 2013).

These financial consequences impact a well-functioning competitive market. The FTC (2011) has found PAEs to have potential competition concerns. The possibility of injunctions or large jury verdicts chills the willingness of implementers to litigate. Put differently, patent aggression makes it less likely that a company will use litigation as a means to stave off the threat of lawsuit. As a result, companies may be willing to pay a significant amount via settlement to avoid such costs. This creates large transaction costs.

Often, according to survey data, PAEs assert their patents strategically at exactly the moment when they have the most leverage over start-ups because of start-up vulnerability. This occurs at opportunistic moments like a liquidity event such as a merger or acquisition or an initial public offering or during a round of venture capital funding (Chien 2013). Funds that could have been spent on Research and Development (R&D) or in launching a product or service for a growth company is now spent on legal fees relating to PAE and privateering claims. This reduces the total outlay of funds to invent and innovate and reduce social welfare. Moreover, PAEs tend to file their claims late in the life of a patent. This suggests that the reason for the litigation is for rent extraction purposes because the PAEs are unlikely to commercialize the technology (Love 2013).

The number of PAE suits has been significant. There are also a growing number of suits in U.S. courts. PAEs also tend to litigate more often than practicing entities because PAEs are more likely to sue a larger number of defendants (Allison et al. 2011). This increases the overall negative impact of the abuse of the legal system and raises the cost for practicing entities that are the targets of such suits. A lack of transparency regarding which patents PAEs hold in their portfolio also adds to risk for operating companies. Some PAEs hide the contents of their portfolios through a sophisticated series of shell companies (Ewing and Feldman 2012). The largest of the PAEs, Intellectual Ventures explicitly acknowledges that it does not reveal the scope of its Intellectual Property (IP) portfolio.

The cost of defending against PAEs in patent suits is significant. Over a decade ago, in 2003, the median litigation cost was \$2 million per side (Allison et al. 2011). In some cases, settlements involving PAEs are in a sense nuisance suits (Chien 2014). If the litigation cost is higher than the cost of the settlement even for a weak patent, a rational firm will pay the settlement rather than litigate. NPE litigation has soared in recent years. There was a four-fold increase between 2010 and 2012 of NPE suits (Scott Morton and Shapiro 2014). In addition to the actual costs of litigation, there are also indirect costs that are hard to measure for companies involving the time of management and the risk taking of those who develop technologies (Sokol 2012).

Oftentimes, the weakness of the patent system provides cover for PAEs to make demands using weak patents. The empirical work to date suggests a significantly lower success rate by NPEs (9.2 percent) versus that of practicing entities (40 percent) in terms of cases at trial (Allison et al. 2011). Given that PAEs are more likely to assert their stronger patents, this suggests that on the whole, PAE patents may be weaker than those of practicing entities. It may be that those patents that are stronger need not go to litigation because those are the ones more likely to lead to settlement. Hence, only those patents that are neither too strong nor too weak go to court. It is telling however that the results in those cases that go to court to decide suggest that a rather high number of patents (28 percent) would be invalidated (Miller 2013). The fact that PAEs seem to have weaker patents offers support to the claim that PAEs are in the business of rent extraction rather than productive economic activity.

Rent seeking on the part of PAEs acts as a tax on innovation. By demanding payment on patents of potential dubious quality, this raises the cost of production for firms that implement technology. The cost of production is not merely static but dynamic. A dollar spent on litigation fees is a dollar not spent on R&D. This is particularly troubling for new entrants that might be foreclosed from market entry because of PAEs.

The book is organized to reflect some of the diversity of analysis and approaches to scholarship. Chapter 2 by Lemley and Melamed provides some definitional analysis as to what a PAE means in various contexts. The book then provides some empirical work on PAEs in the United States. Chapter 3 by Cohen, Gurun, and Kominers finds a negative value by PAEs. Next, Chapter 4 by Contreras provides the first ever empirical account of the exact number and type of suits brought that PAEs bring to enforce Standard Essential Patents (SEPs). He also tracks the nature of the plaintiffs that bring such suits and the legal outcomes using the Lex Machina database. He finds that PAE assertions are a significant number of all SEP assertions.

Privateering, or behavior by hybrid PAEs, is another form of PAE behavior. In the hybrid PAE business model, Sokol observes in his Chapter 5 in this book that the PAE (a shell company) acquires patents from an operating company and then asserts these patents in a form of proxy war as a raising rival's cost strategy. Sokol suggests that antitrust can be used to combat such behavior both through merger law and through conduct law.

PAE behavior requires institutional solutions sometimes outside of antitrust law. Gugliuzza in Chapter 6 makes two claims on the intellectual property side of the debate. First, he argues that the Federal Circuit's immunity doctrine is mistaken as a matter of law, policy, and history. Under his reading of law, if the Federal Circuit were to shift case law, both the federal government and the states could regulate letters that use deceptive or false statements to intimidate recipients into purchasing a license, even in situations where the infringement allegations included in such letters are not objectively baseless. He also argues that there should be shared governance between the federal government and the states to regulate patent demand letters.

This edited collection also brings together works that offer global insights into the law and regulation of PAEs and the impact on competition. Relative to the United States, PAEs and hybrid PAEs are less frequent in Europe and Asia, largely because of different systems' damages and loser pays legal regimes. Chapter 7 by Love, Helmers, Gaessler, and Ernicke examines PAEs in Germany and the United Kingdom. They find that PAEs are approximately ten percent of total patent suits that are litigated in Germany and the U.K. Yanbei explains the Chinese system and how PAEs are increasingly active in Chapter 9 (as well as hybrid PAEs). Ko and Seo, in Chapter 8, similarly provide an analysis of the Korean system to explore how PAE activity is small but the rules in place for PAEs with regard to antitrust are the same as with other forms of behavior. In Chapter 10, Shiraishi explores how the Japanese competition law system addresses the nascent PAE phenomenon and how Japanese competition law can be applied to antitrust-intellectual property

interface cases. Chen discusses how the recent Microsoft/Nokia merger raises PAE/hybrid PAE issues in the Taiwanese context in Chapter 11. Overall, the book shows that while PAEs are most problematic in the United States at present, other competition law systems also have mechanisms in place to combat anti-competitive behavior by PAEs.

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