

PATENT DEMANDS AND INITIAL PUBLIC OFFERINGS

Robin Feldman* and Evan Frondorf**

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ABSTRACT

Quantitative analysis of patent behavior is critical, as congressional and regulatory agencies consider the impact of patent trolling on modern markets. Anecdotal evidence has suggested that “non-practicing entities,” also known as “patent trolls,” specifically target companies for lawsuits, licensing demands, or other monetization activity as firms approach or complete major funding events, such as their initial public offering (IPO). To test this narrative, we survey in-house legal staff at companies that have recently gone public about their exposure to patent demands surrounding their first round of venture capital funding and their IPO. The study is one of the first attempts at providing quantitative insight into this potential strategic behavior both in and out of the courtroom.

We find evidence supporting extensive patent demand activity near IPOs, one of the most public and vulnerable periods of a company’s development. A significant proportion of recently public companies received patent demands either shortly before or after their IPO, with the majority of this activity originating from non-practicing entities. The effects are especially pronounced for information technology companies. Our results are yet another indication that patent assertion activity is driven by issues other than the merits of individual patent claims.

* Harry and Lillian Hastings Professor of Law and Director of the Institute for Innovation Law, University of California Hastings College of the Law.

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I. INTRODUCTION

This paper presents the results of a survey conducted to study the topic of patent demands and how they affect recently public companies. Anecdotal evidence suggests that both competitors and monetizers, colloquially known as “patent trolls,” may opportunistically time their patent demand activity to major funding events in a company’s development. Such demands may include both the threat of legal action as well as the initiation of actual litigation. The study explored this issue by surveying recently public companies about their exposure to patent demand activity surrounding two major funding events in a company’s development: the first round of venture capital funding and the completion of the initial public offering (IPO).

After an exhaustive search process, over 550 U.S. product companies were identified that issued IPOs between 2007 and 2012. The paper details responses from in-house staff, most often the general counsel, of over 50 of these product companies. The results provide quantitative information on the companies’ exposure to patent demand activity at each of four periods: the period before receiving the first round of venture capital funding, the year after receiving the first round of funding, the period between officially declaring an intent to go public and issuing an IPO, and the year following the completion of the IPO. For each period, information is available about whether the company received patent demands, the number received, and the origin of the demands. The paper also includes results about exposure to patent demands depending on industry. In particular, we compared patterns of exposure faced by companies in information technology, the life sciences, and clean energy.

Results also include subjective views of respondents. Specifically, company lawyers reported on whether patent demands pose a problem to companies in their sectors and whether patent demands have had an impact on their companies. Respondents also provide rough estimates of the costs their companies have

incurred to prepare for or defend against patent demands. Finally, respondents had the opportunity to provide free-response comments on the impact of patent demands on their companies and general comments about the topic of patent demands.

The results provide important observational data on strategic behavior in the market for patent monetization. In particular, the results provide evidence of a tactical strategy among monetizers to pursue demands against companies during one of the most public and vulnerable periods of a company's development—the completion and aftermath of its IPO. The results were particularly striking for companies in the information technology industry that went public.

In contrast, we did not find systematic evidence that companies were targeted with patent demands near their early funding rounds after formation. For example, none of the information technology companies reported receiving patent demands in the periods immediately before or after their first round of venture capital funding. In contrast, roughly 60% of information technology respondents reported receiving patent demands in the periods around the company's IPO. Similar but less dramatic patterns were observed for the small sets of life science and clean energy companies that responded.

The key findings from the study include the following:

- Very few respondents reported receiving patent demands before the first round of venture capital funding or in the year following the first round.
- Nearly half of respondents reported patent demand activity in the period surrounding the IPO—either during the short period from the time of the public announcement to the actual IPO, or in the year following the IPO.
- Of the companies that received patent demands in the year following the IPO, half said they received four or more patent demands during this period, and more than 80% said some of the activity against them originated from patent monetizers.
- The large majority of patent demand activity near IPOs was against companies with revenues above \$50 million at the time of their IPOs.
- None of the information technology companies surveyed reported receiving patent demands before the first round of venture funding or in the year following the first round.
- Roughly 60% of the information technology companies reported receiving patent demands in the periods surrounding their IPOs.
- Almost all patent demand activity against information technology companies originated from monetizers.
- Most companies said patent demands are a problem in their sector, with all information technology companies agreeing that patent demands are problematic for their industry.
- Nearly half of companies, and more than two-thirds of information technology companies, said they had spent more than \$250,000

preparing for or defending against patent demands.

For readers who are less familiar with survey and empirical data, we note that the results are observational in nature. Larger sample sizes and response rates are necessary for generalizable results, and we look forward to additional work by academics across time that may provide replication on a larger scale.

A. *Background on the Extent of Modern Patent Monetization*

While patent monetization is not a particularly new concept, it is only recently that the market for this strategy has experienced dramatic growth. For example, approximately 2,500 patent lawsuits were filed in 2007; by 2012, the number of lawsuits had doubled to more than 5,000.¹

Nearly all of this growth resulted from increased activity by patent monetizers. Monetizers filed 428 patent lawsuits in 2007—that number grew to 2,750 in 2012, an increase of more than 600%.² In addition, by 2012, lawsuits by monetizers represented the most common type of patent litigation, increasing from about 20% of lawsuits in 2007 to nearly 60%.³ The increase in patent litigation across this time period was observed in both the number of lawsuits filed and the number of defendants sued. Although the number of defendants declined after passage of the America Invents Act in 2011, the levels remain far above those observed in 2007.⁴

Before continuing, it should be noted that the terminology used to describe the actors involved in patent monetization has been, and still is, subject to politically charged debate.⁵ Government agencies, academics, and journalists use terms including “non-practicing entity” (NPE), “patent assertion entity” (PAE), and the popular colloquialism, “patent troll,” to label actors in the patent assertion landscape.⁶ In this paper, we use a purposefully broad, simple term—“patent monetizer,” defined as any entity or individual whose core business involves

1. See Robin Feldman, Tom Ewing & Sara Jeruss, *The AIA 500 Expanded: The Effects of Patent Monetization Entities*, 17 UCLA J.L. & TECH. 1, 42 (2013), <http://www.lawtechjournal.com/articles/2013/041024-Feldman.pdf> [<http://perma.cc/9RET-3ERZ>]; see also Matthew Sag, *IP Litigation in United States District Courts: 1994 to 2014*, (forthcoming IOWA L. REV.) (finding that patent litigation volume doubled from 2010 to 2013) available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2570803.

2. Feldman, Ewing & Jeruss, *AIA 500 Expanded*, *supra* note 1, at 42.

3. *Id.* The actual percentages vary slightly depending on whether individuals and trusts, which often behave similarly to patent monetizers, are included as monetizers for calculation purposes.

4. For a description of the possible impact of the America Invents Act on patent litigation, see *id.* at 43-57.

5. See generally Robin Feldman, *Patent Demands & Startup Companies: The View from the Venture Capital Community*, 16 YALE J.L. & TECH. 236, 244-54 (2014), <http://yjolt.org/sites/default/files/Feldman-1.pdf> [<http://perma.cc/2EDU-U2J9>] (discussing in detail the choice of “terms and points of measurement” when studying patent assertion).

6. *Id.*

licensing or litigating patents rather than making products. The use of “patent monetizer” ensures that all actors involved in revenue generation using patents are included in the discussion, regardless of the actions they take to do so or how they are organized. It also makes no judgment as to the legitimacy or acceptability of an actor’s behavior or business dealings. However, when discussing previous work by another author, we will preserve the author’s choice of terminology.

Although the number of lawsuits filed by monetizers has increased notably, the main engine for profit generation is not collecting damages from a decision on the merits in court. In fact, the complexity of the patent system and high costs of litigation encourage settlements and extraction of licensing fees regardless of whether the patent holder is likely to prevail. For example, Chien found that fighting a PAE demand through litigation costs companies approximately \$850,000 on average.⁷ Meanwhile, settling costs an average of only \$340,000, and fighting out of court resulted in expenses of \$170,000.⁸ Such non-litigation options were not only cheaper, but also considerably more popular for defendants than choosing to work through the entire litigation process. Bessen and Meurer reported similar mean legal costs of about \$420,000 for small or medium-sized companies and \$1.52 million for large companies responding to a NPE demand.⁹

One major result of this phenomenon is that patent demands—including litigation or the threat of litigation—have become an unpleasant part of life for many growing product companies, especially startup companies in the technology sector. In a 2013 survey, Chien found that 75% of venture capitalists had received NPE demands against at least one company in their portfolio, and 20% of all venture-backed startup companies surveyed had received demands.¹⁰ Feldman, conducting a similar survey, found that 70% of venture capitalists have experienced demands against a portfolio company, while 31% of venture-backed companies independently reported demands against them.¹¹ Respondents in the Feldman study also reported that a majority of these demands originated from monetizers.¹²

Patent lawsuits overwhelmingly affect companies with small revenues and the least ability to defend against patent demands through expensive litigation. In another study, Chien found that companies with less than \$10 million in revenue

7. Colleen Chien, *Startups and Patent Trolls*, 17 STAN. TECH. L. REV. 461, 472-73 & 473 tbl.1 (2014), <http://journals.law.stanford.edu/sites/default/files/stanford-technology-law-review/online/startupsandpatenttrols.pdf> [<http://perma.cc/ELP7-Q9LX>].

8. *Id.* at 462, 465, & 473.

9. James Bessen & Michael J. Meurer, *The Direct Costs from NPE Disputes*, 99 CORNELL L. REV. 387, 397-400 (2014), <http://cornelllawreview.org/files/2014/01/99CLR387.pdf> [<http://perma.cc/7HPH-3WSD>]. Small and medium firms were defined as companies with less than \$1 billion in annual revenue. Large companies exceeded \$1 billion in annual revenue.

10. Colleen V. Chien, White Paper for the Open Technology Institute, *Patent Assertion and Startup Innovation*, NEW AMERICA FOUNDATION (2013) at 10-11, <http://ssrn.com/abstract=2321340> [<http://perma.cc/MM6C-YN7T>].

11. Feldman, *Patent Demands & Startup Companies*, *supra* note 5, at 263-65.

12. *Id.* at 266-67.

make up more than half of unique defendants in PAE lawsuits.¹³ According to Bessen and Meurer, companies with less than \$100 million in annual revenue make up as much as 82% of defendants in NPE lawsuits.¹⁴ Meanwhile, operating companies only sued companies with less than \$10 million in annual revenue 16% of the time.¹⁵ These small companies find themselves most vulnerable to strategies based on the economics of patent litigation, with settlement often being the most attractive option regardless of the merits of the demand.

The majority of targets of patent assertions are technology and software companies. According to Chien, nearly 90% of technology venture capitalists have faced demands against a portfolio company,¹⁶ and Feldman found that 70% of venture capitalists have experienced demands against an information technology portfolio company.¹⁷ Feldman also reported that the percentages were far smaller for venture capitalists in other sectors.¹⁸ More generally, the patents asserted in litigation are largely software, technology, or Internet-related patents. In an examination of NPE lawsuits, Bessen, Ford, and Meurer found that 62% of these suits involved software patents.¹⁹ Chien and Karkhanis reported that up to 82% of lawsuits filed by PAEs were based on a software patent, compared to just 30% of all non-PAE lawsuits.²⁰ Meanwhile, Allison, Lemley, and Walker found that almost 94% of assertions of the most litigated patents—patents that are the subject of eight or more lawsuits—involved software patents.²¹ Allison, Tiller, Zyontz, and Bligh reported that Internet patents were 7.5 to 9.5 times more likely than non-Internet patents to be the subject of infringement litigation.²²

Behind much of this litigation are software patents of low quality. In a 2013 survey, Chien noted complaints from numerous venture capitalists and startup companies about poor patent quality. Respondents called many software patents

13. Chien, *supra* note 7, at 471.

14. Bessen & Meurer, *supra* note 9, at 397-98; *see also id.* at 398 n.57 (explaining that making this estimate requires an assumption that firms with unreported revenue have revenues less than \$100 million), Chien, *supra* note 7, at 464 (reporting a wider range of 66-82% using the RPX Corporation database from Bessen & Meurer).

15. Chien, *supra* note 7, at 464.

16. Chien, *Patent Assertion and Startup Innovation*, *supra* note 10, at 10-11 & fig.1.

17. Feldman, *Patent Demands & Startup Companies*, *supra* note 5, at 265.

18. *Id.*

19. James Bessen, Jennifer Ford & Michael J. Meurer, *The Private and Social Costs of Patent Trolls*, REG., Winter 2011-2012, at 26, 29 tbl.2, <http://object.cato.org/sites/cato.org/files/serials/files/regulation/2012/5/v34n4-1.pdf> [<http://perma.cc/54C4-Q6BN>].

20. Colleen Chien & Aashish Karkhanis, *Software Patents & Functional Claiming*, Presentation to the Software Patent & Trademark Office Roundtable at Stanford Law School (Feb. 12, 2013), <http://digitalcommons.law.scu.edu/facpubs/603> [<http://perma.cc/K4KN-YTXE>].

21. John R. Allison, Mark A. Lemley & Joshua Walker, *Patent Quality and Settlement Among Repeat Patent Litigants*, 99 GEO. L.J. 677, 696 (2011).

22. John R. Allison, Emerson H. Tiller, Samantha Zyontz & Tristan Bligh, *Patent Litigation and the Internet*, 2012 STAN. TECH. L. REV. 3, 4 (2012).

“not novel” and said “many obvious things are patented.”²³ Using a probit model, Miller estimated that 39% of software patents and 56% of business method patents (often software patents themselves) could be found at least partially invalid, compared to 28% of all patents.²⁴ And in practice, software patent owners are far less likely to win their cases than owners of non-software patents. Allison, Tiller, Zyontz, and Bligh found that software patentees won less than 13% of their cases, compared to 37% of cases won by non-software patentees.²⁵

The impact of patent demands is substantial. Bessen and Meurer estimated the direct aggregate cost of NPE patent assertions to be \$29 billion in 2011, a more than four-fold increase from 2007.²⁶ That figure includes only direct business and legal costs to U.S. companies—the indirect effects are also large. For example, patent demands can lead to “significant operational impacts,” including loss of clients, hiring delays, changes to products, or a complete exit from a business.²⁷ Pending demands and litigation can also lead to a reduction in a company’s valuation.²⁸

Most important, in what economists are calling the “leaky bucket,” little of the money paid to monetizers flows back to invention and innovation.²⁹ Rather, only an estimated 20% of payments to NPEs flows back to inventors or to internal research and development.³⁰

23. See Chien, *Patent Assertion and Startup Innovation*, *supra* note 10, at 15 (quoting one startup respondent as saying, “[i]n the case of software patents, not only is there significant prior art in a large percentage of cases, but most software patents are not novel: someone had a need to do something, and created it,” and another as saying, “the biggest problem with patents is in the software world, where many obvious things are patented.”). For a discussion of why software patents tend to be problematic, see ROBIN FELDMAN, *RETHINKING PATENT LAW* 104-124 (Harvard 2012); Brief of Amici Curiae Professor Robin Feldman and the U.C. Hastings Institute for Innovation Law on Behalf of Neither Party, *Alice Corp. Pty. Ltd., v. CLS Bank Int’l*, 134 S. Ct. 2347 (2014) available at http://www.americanbar.org/content/dam/aba/publications/supreme_court_preview/briefs-v3/13-298_np_amcu_prof_rf_authcheckdam.pdf.

24. Shawn P. Miller, *Where’s the Innovation: An Analysis of the Quantity and Qualities of Anticipated and Obvious Patents*, 18 VA. J.L. & TECH. 1, 6-7 (2013).

25. Allison, Lemley & Walker, *supra* note 21, at 696 & tbl.10. These percentages consider only patent owner wins and defendant wins on the merits, and exclude default judgments and settlements; *see also id.* at 693-94 & tbl.8 (describing how NPEs were also found to have a significantly lower win rate, winning only 8% of their cases, compared to 40% of cases won by product companies).

26. Bessen & Meurer, *supra* note 9, at 408 & tbl.4.

27. See Chien, *Startups and Patent Trolls*, *supra* note 7, at 474 (defining a “significant operational impact” as resulting in “a business strategy pivot, product change, business/business line exit, delay in hiring or meeting operational milestone, and/or a reduction in the value of the company.”).

28. *Id.*; *see also* Chien, *Patent Assertion and Startup Innovation*, *supra* note 10, at 12 (“Having an outstanding patent lawsuit . . . can cause a company to be devalued significantly, for example, by 20%.”) [<http://perma.cc/MM6C-YN7T>].

29. Fiona M. Scott Morton & Carl Shapiro, *Strategic Patent Acquisitions*, 79 ANTITRUST L.J. 463, 482-82 (2014).

30. See Robin Feldman & Mark A. Lemley, *Does Patent Licensing Mean Innovation?*, IOWA L.

Among all of this assertion activity, there are undoubtedly monetizers who have targeted valid patents against companies that have clearly infringed those patents. It is also true that a small inventor is at a severe disadvantage asserting a patent on its own against a large infringer. The complexity and expense of the patent system has always been daunting for small players in the field. The concern, however, is that the economics of patent litigation may be encouraging strategic behavior that can be harmful to innovation. Rather than returning money to inventors small and large, we may be incentivizing vast amounts of wasteful activity.

Legislators and policymakers have taken note of the rapid rise in patent demands by monetizers, leading to new and proposed regulation as well as a spike in common law decisions. The America Invents Act, which took effect in 2011, introduced numerous reforms to the patent system. As it pertains to patent monetizers, the Act changed joinder rules that apply to patent lawsuits, making it more difficult to include multiple defendants in the same lawsuit.³¹ The House of Representatives approved another patent reform bill in 2013 mainly pertaining to litigation reform.³² The bill died in the Senate, but multiple reform bills are now back under consideration.³³ At least 20 states have passed legislation since 2013 targeting instances of bad faith patent assertion, with bills introduced in others.³⁴ Outside of legislation, multiple commissions and agencies have considered the issue of patent assertion in particular. The White House issued executive orders and a report on patent assertion in 2013,³⁵ while the Federal Trade Commission has opened an investigation focusing on the economic effects of 25 patent monetizers.³⁶

REV. (forthcoming) (manuscript at 6), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2565292 [<http://perma.cc/2WRM-8TQV>] (citing Bessen & Meurer, *supra* note 9, at 423).

31. Leahy-Smith America Invents Act, 35 U.S.C. § 299 (2012).

32. Innovation Act, H.R. 3309, 113th Cong. (2013).

33. See, e.g., Innovation Act, H.R. 9, 114th Cong. (2015); Protecting American Talent and Entrepreneurship Act of 2015, S. 1137, 114th Cong. (2015).

34. *Patent Progress's Guide to State Patent Legislation*, PATENT PROGRESS (last visited Apr. 1, 2014), <http://www.patentprogress.org/patent-progress-legislation-guides/patent-progress-guide-state-patent-legislation> [<http://perma.cc/3728-QQ9S>]. See, e.g., Bad Faith Assertions of Patent Infringements, VT. STAT. ANN. tit. 9, §§ 4195-4199 (West, Westlaw through 2013-2014 Sess.) (delineating factors that courts can consider as evidence of bad faith assertions of patent infringement, and creating remedies and enforcement policies, thereby making it the first state to pass legislation against patent trolling). In many other states, the acts signed into law are nearly identical to the Vermont legislation. See, e.g., Actions for Bad Faith Assertion of Patent Infringement, ME. REV. STAT. tit. 14, §§ 8701-8702 (West, Westlaw through 2015 ch. 1); Bad Faith Assertions of Patent Infringement, VA. CODE ANN. tit. 59.1, §§ 59.1-215.1 – 59.1-215.4 (West, Westlaw through 2015 ch. 1); Patent Infringement Claims, MO. ANN. STAT., tit. 26, §§ 416.650-416.658 (West, Westlaw through 2014 Sess.).

35. See Executive Office of the President, Patent Assertion and U.S. Innovation (June 2013), http://www.whitehouse.gov/sites/default/files/docs/patent_report.pdf [<http://perma.cc/9C2X-VPYD>].

36. See Press Release, Federal Trade Commission, FTC Seeks to Examine Patent Assertion

The Supreme Court has also joined the conversation, handing down six patent-related decisions during the 2013-2014 term. In comparison, the Court heard only five patent cases in the 15 years after the creation of the Federal Circuit in 1982.³⁷ Each decision last term walked back Federal Circuit logic and curtailed some of the broad powers enjoyed by patent holders.³⁸ Notably, in *Nautilus v. Biosig*, a unanimous Court overturned a Federal Circuit rule that patent claims may contain ambiguity as long as the claims are not “insolubly ambiguous,” possibly setting a lower bar for overturning patents for indefiniteness.³⁹ In *Octane Fitness, LLC v. ICON Health & Fitness, Inc.*, the Court ruled that the Federal Circuit’s standard for awarding attorney’s fees to prevailing parties in patent cases was “unduly rigid.”⁴⁰ The Patent Act contains a fee-shifting provision that allows district courts to award attorney’s fees in “exceptional cases,”⁴¹ which the Federal Circuit had defined as cases that involve inappropriate conduct or are both “objectively baseless” and “brought in subjective bad faith.”⁴² Noting that this framework is “too restrictive” and covers conduct that is already “independently sanctionable,”⁴³ the Court also ruled that the Federal Circuit’s evidentiary standard of clear and convincing evidence for fee recovery was unjustified, finding that a preponderance of the evidence standard is used in most other patent infringement litigation.⁴⁴ The decision in *Octane*, along with the opinion in a closely related case, *Highmark, Inc. v. Allcare Health Management System, Inc.*,⁴⁵ may help to decrease the effectiveness of monetizer strategies by introducing a greater risk that a losing monetizer will be responsible for attorney’s fees.⁴⁶

The increasing level of interest in patent monetization has led to novel research on the topic. However, while many studies use litigation data, few patent demands actually progress to a lawsuit. Threats of litigation and licensing requests take place in a realm outside of the courthouse, making up the large majority of demand activity,⁴⁷ and information about this substantial activity is not covered

Entities and Their Impact on Innovation, Competition (September 27, 2013), <http://www.ftc.gov/news-events/press-releases/2013/09/ftc-seeks-examine-patent-assertion-entities-their-impact> [<http://perma.cc/ZRB9-FVZ9>].

37. Robin Feldman, *Coming of Age for the Federal Circuit*, 18 GREEN BAG 2D 27, 27 (2014), http://www.greenbag.org/v18n1/v18n1_articles_feldman.pdf [<http://perma.cc/LEE5-8F4M>].

38. *See generally id.* (discussing the evolving relationship between the Supreme Court and the Federal Circuit).

39. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S.Ct. 2120, 2124 (2014).

40. *Octane Fitness, LLC v. ICON Health & Fitness, Inc.*, 134 S.Ct. 1749, 1755 (2014).

41. Patent Act, 35 U.S.C. § 285 (2012).

42. *Brooks Furniture Mfg., Inc. v. Dutailier Intern., Inc.*, 393 F.3d 1378, 1381 (2005).

43. *Octane*, 134 S.Ct. at 1756-57.

44. *Id.* at 1758.

45. *Highmark, Inc. v. Allcare Health Mgmt. Sys., Inc.*, 134 S.Ct. 1744 (2014).

46. *See Feldman, Coming of Age, supra* note 37, at 35 (discussing these cases in more detail).

47. Estimates of the number of patent threats range from 60,000 to more than 100,000 per year. *See Colleen Chien, Patent Assertion Entities*, Presentation to the DOJ/FTC Workshop on PAEs (Dec. 10, 2012), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2187314

by litigation data sets. Further, these non-court interactions are often obscured and hidden by nondisclosure agreements and fears of retaliation.⁴⁸ Therefore, anonymous surveys, such as the one presented in this paper, are an important tool for beginning to understand the full landscape of patent assertion.

B. *An Overview of Initial Public Offerings and Patent Monetization*

An initial public offering can offer a growing and successful company many benefits, including an injection of capital, a liquidity event for existing shareholders, and extensive press and publicity, among others.⁴⁹ Yet accessing these rewards requires a costly and laborious preparation and filing process, involving coordinated efforts in reporting, auditing, due diligence, underwriting, public relations, and marketing. The required SEC registration forms—most notably, Form S-1—must offer detailed information about a company's finances, structure, and risks. For many companies, this represents an extensive disclosure of proprietary and sensitive information theretofore unreleased to the public.⁵⁰ Soon-to-be public companies must also extensively market themselves through a traditional "IPO roadshow," where companies hold meetings across the world to meet with investors, with the hopes of convincing them to purchase shares during the IPO.⁵¹

The public display, lasting about three to four months from the initial

[<http://perma.cc/XPY4-K6JS>] (noting that at least 2500 PAE lawsuits were filed in 2012 and then claiming that the total number of demands is 25 to 50 times that amount); *see also* Executive Office of the President, *supra* note 35, at 6 (originally performing the calculation using the data from Chien).

48. *See, e.g.*, Alex Blumberg & Laura Sydell, *This American Life: When Patents Attack!* (National Public Radio broadcast July 22, 2011), transcript <http://www.thisamericanlife.org/radio-archives/episode/441/transcript> [<http://perma.cc/6FPV-2Y5P>] (“[W]e called people who had licensing arrangements with [a monetizer]. We called people who were defendants in lawsuits involving [the monetizer’s] patents. We called every single company being sued by [another monetizer]. No one would talk to us.”); *see also* Robin Feldman & Tom Ewing, *The Giants Among Us*, 2012 STAN. TECH. L. REV. 1, 2-3 (2012), (describing similar issues in uncovering information about patent monetizers).

49. *See* Elizabeth Myers, Bill Contente, Michael Millman & Christopher Roberts (on behalf of J.P. Morgan), *Why Go Public?*, in NEW YORK STOCK EXCHANGE IPO GUIDE 9, 10 (2013), https://www.nyse.com/publicdocs/nyse/listing/nyse_ipo_guide.pdf [<http://perma.cc/HP2L-7WEH>] (explaining advantages of conducting an IPO); *see also* PRICEWATERHOUSECOOPERS, ROADMAP FOR AN IPO: A GUIDEMAP FOR GOING PUBLIC 3 (2011), http://www.pwc.com/en_US/us/transaction-services/publications/assets/roadmap-to-an-ipo.pdf [<http://perma.cc/3Y6B-AZ4V>] (discussing potential advantages of going public).

50. *But see* Jeffrey R. Vetter & William H. Hughes (on behalf of Fenwick & West LLP), *The IPO On-Ramp Under the JOBS Act*, in NEW YORK STOCK EXCHANGE IPO GUIDE, *supra* note 49, at 43, 44-45, for a discussion of how recent legislation allows certain eligible emerging growth companies to make confidential submissions of the draft registration statements in the early stages of the filing process. However, a public filing of the registration statement is still required at least 21 days before the start of the IPO roadshow.

51. *See* PRICEWATERHOUSECOOPERS, *supra* note 49, at 51-52 (describing the purpose and format of an IPO roadshow).

organizational meeting to the first day of trading,⁵² makes a company uniquely vulnerable to unfavorable events and negative press that could adversely affect its share price, valuation, and investor interest in the IPO. Anecdotal evidence suggests that patent monetizers and competitors are taking advantage of this vulnerability by issuing patent demands to companies during their filing period and shortly after the completion of the IPO. In a 2013 *Reuters* report on patent lawsuits, this potential pattern of patent demands was accepted as fact—just part of the path to an IPO: “Patent claims against companies approaching an IPO are relatively common, as plaintiffs hope the need for a target company to minimize risks might force a lucrative settlement.”⁵³

Much of the evidence for this timing originates from reported events in the press. For example, just three days before its November 2013 IPO, Twitter disclosed in an updated S-1 that it had received a letter from IBM alleging that Twitter had infringed on three IBM patents.⁵⁴ This addition of approximately eight lines to the “Risk Factors” section of a 250-page document made news in outlets including the *Wall Street Journal* and *Reuters*.⁵⁵ Four months later, Twitter purchased 900 patents from IBM to settle the dispute, providing an example of companies stockpiling patents as a defense against further threats and litigation.⁵⁶

Developments in ongoing litigation also can have an impact that may affect share prices, investor interest, and even the timing of the IPO. When GrubHub Seamless, an online food-ordering company, filed the first version of its S-1 in February 2014, the company disclosed that it was currently defending itself against patent infringement lawsuits involving its online ordering systems.⁵⁷ The lawsuits

52. See Elizabeth Myers, Bill Contente, Michael Millman & Christopher Roberts (on behalf of J.P. Morgan), *The IPO Process*, in NEW YORK STOCK EXCHANGE IPO GUIDE, Myers et al., *supra* note 49, at 31, 32-33 (outlining a standard timeline for the IPO process).

53. Dan Levine, *In Patent Showdown, IBM's Arsenal Drafts Twitter's*, REUTERS, Nov. 4, 2013, <http://www.reuters.com/article/2013/11/04/us-twitter-patents-idUSBRE9A30ZW20131104> [<http://perma.cc/6ZBS-E295>].

54. Compare Twitter, Inc., Securities Registration Statement (Form S-1/A), at 35 (November 4, 2013), <http://files.shareholder.com/downloads/AMDA-2F526X/3989352158x0xs1193125%2D13%2D424260/1418091/filing.pdf> [<http://perma.cc/76KP-QJA6>] (including the IBM disclosure) with Twitter, Inc., Securities Registration Statement (Form S-1/A), at 35 (October 24, 2013), <http://files.shareholder.com/downloads/AMDA-2F526X/3989352158x0xs1193125%2D13%2D409822/1418091/filing.pdf> [<http://perma.cc/EUY5-4RZF>] (showing the previous version of the S-1 filing without the IBM disclosure).

55. See Telis Demos, Yoree Koh & Matt Jarzemsky, *Twitter Raises Sights in Heady IPO Market*, WALL ST. J., Nov. 4, 2013, <http://www.wsj.com/articles/SB10001424052702303482504579177541101538338> [<http://perma.cc/SHW2-TK8G>]; see also Levine, *supra* note 53.

56. See Rachel Abrams, *Market for Patents Was Softer in 2013, Firms Say*, N.Y. TIMES, Feb. 4, 2014, <http://dealbook.nytimes.com/2014/02/04/market-for-patents-was-softer-in-2013-firms-say> [<http://perma.cc/6HFX-TS8Y>].

57. See GrubHub Inc., Securities Registration Statement (Form S-1), at 24-25, 81 (Feb. 28, 2014), <http://d11ge852tjjqow.cloudfront.net/CIK-0001594109/6f68ff88-9480-4835-88e5->

were filed by Ameranth, a known patent monetizer that earns the majority of its revenue by collecting payments on patents.⁵⁸ On March 26, 2014, the U.S. Patent and Trademark Office denied a petition filed by GrubHub and 34 other entities asking for patent review, finding that the petition did “not establish that at least one of the challenged claims is more likely than not unpatentable.”⁵⁹ The decision essentially allowed Ameranth’s lawsuits against GrubHub to move forward. However, Ameranth did not publicly announce that its patent claims had been “confirmed” by the USPTO until just three days before GrubHub’s IPO—a full six days after the petition been denied.⁶⁰ The announcement caused the pending litigation to become a salient risk factor for GrubHub in the media.⁶¹ *Fortune* announced, “Amid IPO, one of GrubHub’s risk factors just got riskier.”⁶² *CNNMoney* reported that GrubHub was “facing a potentially expensive lawsuit.”⁶³ Since the USPTO’s decision had been rendered almost a week earlier, the timing of Ameranth’s announcement raises the concern that the patent holder may have waited to issue its press release until three days before the IPO to ensure maximum impact.

Both IBM’s threat against Twitter and Ameranth’s press release both came days before upcoming IPOs—timing that seems unlikely to have been coincidental. And similar instances of suspicious lawsuit timing occurred before IPOs for OpenTable, Google, and PayPal.⁶⁴ Litigation against PayPal actually led to a weeklong delay in the company’s 2002 IPO, in part to refile the S-1 with the SEC in order to reflect the new development.⁶⁵ In PayPal’s answer to the complaint

8a4eaa002598.pdf?noexit=true [http://perma.cc/B8D2-MF2N] (describing the Ameranth litigation).

58. See Erin Griffith, *Amid IPO, One of GrubHub’s Risk Factors Just Got Riskier*, FORTUNE (Apr. 4, 2014, 9:00 AM), http://fortune.com/2014/04/04/amid-ipo-one-of-grubhubs-risk-factors-just-got-riskier/?iid=SF_F_MPM [https://perma.cc/7Z6M-XXDN?type=source].

59. *Agilysys, Inc. v. Ameranth, Inc.*, No. CBM2014-00014, Paper No. 19 (P.T.A.B. Mar. 26, 2014), <http://www2.sidley.com/files/Uploads/Documents/PTO%20Trials/CBM2014-00014.pdf>.

60. See Press Release, Ameranth, Inc., *Ameranth’s 21st Century Communications™ Data Synchronization Patent Claims Confirmed Valid by U.S. Patent Office* (Apr. 1, 2014), <http://www.prnewswire.com/news-releases/ameranth-21st-century-communications-data-synchronization-patent-claims-confirmed-valid-by-us-patent-office-253417011.html> [http://perma.cc/QL5A-XYCT].

61. See *id.*

62. Griffith, *supra* note 58.

63. Ben Rooney, *GrubHub IPO Delivers: Up 31%*, CNN MONEY (Apr. 4, 2014, 4:21 PM), <http://money.cnn.com/2014/04/04/investing/grubhub-ipo> [http://perma.cc/B5W7-PHFB].

64. See Tom Ewing, *Indirect Exploitation of Intellectual Property Rights by Corporations and Investors: IP Privateering and Modern Letters of Marque and Reprisal*, 4 HASTINGS SCI. & TECH. L.J. 1, 70 n.286 (2012), <http://uchstlj.org/wp-content/uploads/2015/10/Indirect-Exploitation-of-Intellectual-Property-Rights-By-Corporations-and-Investors.pdf> [http://perma.cc/H6ZB-S2N8] (citing these specific cases of suspicious timing).

65. See PayPal, Inc., Securities Registration Statement (Form S-1/A), at 64-66 (Feb. 7, 2002), <http://www.nasdaq.com/markets/ipos/filing.ashx?filingid=1645013> (disclosing the Certco complaint); see also Verne Kopytoff, *PayPal Plans IPO Despite Problems / Patent Suit*,

filed by Certco, PayPal accused Certco of filing the lawsuit “with the intent that it would disrupt PayPal’s initial public offering” and claimed that the delay resulted in damages to PayPal.⁶⁶

In addition to the possibility of concerns over the potential impact on innovation and the patent system, patent demand activity timed in relation to stock offerings such as IPOs could raise other concerns. In theory, such strategically timed behavior could suggest that a competitor is trying to harm a company it sees as a potential threat by reducing the amount of money the company can raise in its IPO. For example, in a 2006 complaint, GoDaddy accused a competitor, j2 Global, of this behavior, stating that an infringement lawsuit filed by j2 Global was meant to prevent GoDaddy from successfully completing its IPO, “which would have enabled GoDaddy to compete more effectively with j2.”⁶⁷

Securities regulators also may be concerned if investors appear to be attempting to manipulate stock prices, either before the price is set in an IPO or after the stock has begun to trade through short selling. For example, a patent holder in theory could take a short sale position in a company’s stock—essentially betting that the company’s stock price will fall—and then help to facilitate patent related actions, hoping to drive down the price.⁶⁸

This type of behavior has grounding in reality. Recent press has discussed the actions of a hedge fund manager who is betting against pharmaceutical companies and then challenging their patents, all while investing “in those [companies] that would profit if the patents were invalidated.”⁶⁹ His strategy makes use of inter

Banking Questions Cloud Palo Alto Firms Offering, S.F. CHRON. (Feb. 15, 2002, 4:00 AM), <http://www.sfgate.com/business/article/PayPal-plans-IPO-despite-problems-Patent-suit-2874230.php> [<http://perma.cc/H4HW-6UPB>] (covering the IPO delay).

66. PayPal, Inc.’s Answer, Counterclaims, and Demand for Jury Trial at 2, Certco, Inc. v. PayPal, Inc., No. 02-094 (D. Del. Feb. 11, 2002), http://www.sec.gov/Archives/edgar/data/1103415/000091205702004798/a2070244zex-99_2.htm [<http://perma.cc/FF62-VMN4>].

67. Complaint and Demand for Jury Trial at 14, Go Daddy Grp. Inc. v. j2 Glob. Commc’ns, No. 2:06-cv-02474-NVW (D. Ariz. Oct. 17, 2006); *see also* Robin Feldman, *Intellectual Property Wrongs*, 18 STAN. J.L. BUS. & FIN. 250, 288-94 (2013) (detailing the behavior of j2 Global).

68. For an early article speculating about this type of behavior, see Michelle Carniaux & Michael E. Sander, *The Curious Case of New Bay Capital LLC and VirnetX Inc.*, IPR BLOG (Nov. 22, 2013), <http://interpartesreviewblog.com/curious-case-new-bay-capital-llc-virnetx-inc> [<http://perma.cc/48GV-4NMW>]. VirnetX, which won its own \$368 million patent infringement verdict against Apple in 2012, claimed that a newly created shell company known as New Bay Capital demanded that VirnetX pay New Bay \$37 million or face potentially damaging requests for inter partes review (IPR) for the patents asserted against Apple. Ryan Davis, *Co. Accused of AIA ‘Shakedown’ Asks to Drop USPTO Review*, LAW360 (Oct. 30, 2013, 6:30 PM), <http://www.law360.com/articles/483839> [<https://perma.cc/8NRG-97FU?type=source>].

69. Joseph Walker & Rob Copeland, *New Hedge Fund Strategy: Dispute the Patent, Short the Stock; Hayman Capital Seeks to Invalidate Patents While Betting on a Drop in Target’s Shares*, WALL ST. J. (Apr. 7, 2015, 7:24 PM), <http://www.wsj.com/articles/hedge-fund-manager-kyle-bass-challenges-jazz-pharmaceuticals-patent-1428417408> [<http://perma.cc/FF62-VMN4>]; *see also* Ryan Davis, *Hedge Fund’s AIA Attack Should Have Biotech Cos. Wary*, LAW360 (Mar. 9, 2015, 2:16

partes review (IPR), a mechanism created after the passage of the America Invents Act to allow for expeditious patent challenges initiated by third-party petitions. The hedge fund manager claims that his challenges will reduce drug prices for consumers. If a pharmaceutical patent really is weak, then society's interests might align with those of the hedge fund manager, making it acceptable to profit from taking the risk of challenging a bad patent. One would have to be certain, however, that the hedge fund manager's interests align tightly with society's interests and that no market manipulations concerns exist.

Yet, aside from these stories and assumptions, little research exists regarding whether these examples are emblematic of a more pervasive strategy utilized around funding moments. Limited data on the question does exist. In a survey of startups and venture capitalists, Chien found that "timing [of assertions] seemed to be dictated by an event in the company's development."⁷⁰ When respondents were asked to list what they considered to be the triggers for patent demands against their companies, the most popular answers were publicity or success, a merger or acquisition, an IPO, and funding.⁷¹ But Feldman, examining patent demands surrounding the initial round of venture funding, did not find evidence that patent demands were tied to receiving venture funding. She reported that only 11% of companies received patent demands within one year of the first funding round, with 53% receiving their first demand more than a year after the initial round of funding and 27% receiving their first demand before any funding event.⁷²

This Article explores the issue in greater depth by collecting data about when companies receive patent demands. Specifically, we surveyed recently public companies about their experiences with patent demands surrounding two major events in a company's development: receiving the first round of venture capital funding, and completing the IPO. The goal was to collect substantive data in order to probe the narrative of conspicuous lawsuit timing on the part of monetizers and competitors.

C. Identification of Participants

To collect information about the effect and timing of patent demands on recently public companies, we attempted to identify an in-house legal staff member for all U.S. product companies that had gone public since 2007. The particular 2007 start date was selected in order to reach a substantial number of companies on both sides of the dramatic increase in patent demand litigation that began roughly around 2009.⁷³

PM), <http://www.law360.com/articles/628691> [<https://perma.cc/KMQ9-J6UZ?type=source>].

70. Chien, *supra* note 10, at 11.

71. *See id.* at 36 n.29 ("The survey asked startup and VC respondents to identify what they thought triggered the suits/demands they had experience with. The top answer was publicity or success (N=21), followed by an M&A event (N=5), IPO (N=6), and funding (N=5).").

72. Feldman, *supra* note 5, at 267-68.

73. *See* Feldman, Ewing & Jeruss, *supra* note 1, at 42 (detailing the increase in patent

The first step in this process was identifying the list of businesses that met the above criteria. A working database of recently public companies was created in late May of 2013 using data from Thomson Reuters SDC Platinum, which provides information on financial transactions, resulting in a list of all IPOs issued on U.S. markets between January 2007 and December 2012. This database is publicly available to researchers who wish to conduct further research or replicate the study. The set of nearly 1200 IPOs was then narrowed to include only the IPOs of domestic product companies in the same time period. This was accomplished by parsing the data set to remove foreign companies, “blank check” companies, and businesses classified as holding, investment, and real estate companies. Foreign companies were eliminated to focus the study on companies and patent monetizers that operate in the U.S. legal environment, which does not affect foreign-based entities nearly to the same extent as those that are domestically held.

A “blank check” company is defined by the SEC as “a development stage company that has no specific business or purpose,” or a company that is created with the intent to undertake a merger or acquisition with another entity.⁷⁴ In the raw database of recent IPOs obtained from Thomson Reuters SDC Platinum, these companies frequently included the word “acquisition” directly in their name, such as “Prime Acquisition Corp” or “Highlands Acquisition Corp.” Given that these companies appear to have no relation to product creation or development, they were not included in the final survey database.

Holding, investment, and real estate companies represent a broad category of businesses including investment banks, investment funds, real estate investment trusts (REITs), hedge funds, holding companies, private equity firms, private real estate services, and commodities brokers, among other similar entities. We chose to focus our research on the experience of product companies, given the centrality of product creation for the patent system.⁷⁵ One could argue, however, that some of these holding, investment, and real estate companies would also be relevant to include for a more complete picture of all patent demand activity. Other researchers in the future may wish to either include this category or to parse through the different types of entities grouped by the SDC Platinum database used for this study.

The final set of potential contacts included information on, to the best of our knowledge, all 555 IPOs on U.S. markets between 2007 and 2012 that involved domestic product companies, representing the desired response population for the survey. Research assistants were tasked with finding a specific contact in each company’s legal department, most often the company’s general counsel, who

infringement lawsuits); *see also id.* at 18-19 (offering a rationale for choosing a similar date range for another study of patent monetization).

74. *Blank Check Company*, U.S. SEC. & EXCH. COMM’N, <http://www.sec.gov/answers/blankcheck.htm> [https://perma.cc/LM2P-CLCS?type=source] (last visited Feb. 25, 2015).

75. *See* U.S. CONST. art. I, § 8 (authorizing Congress to grant patent rights to promote the progress of “useful arts”); *see generally* Feldman & Lemley, *supra* note 30.

would have the ability to respond to the survey questions. While contact names and phone numbers were often easily accessible on company websites, research assistants did experience difficulty finding e-mail contact information for general counsel. Creative techniques were used to identify e-mail addresses and other contact information. Methods included searching state bar websites and using a company's publicly available e-mail addresses in order to extrapolate the company's standard e-mail format.⁷⁶ When other avenues failed, assistants called companies' general counsel directly to request participation in the study. At the conclusion of this process, e-mail addresses were collected for general counsel or for another legal contact at 406 of the 555 companies in the final data set.

D. *Design of Study and Participants*

The survey was sent to the legal contact at 406 domestic product companies that issued an IPO on U.S. markets between 2007 and 2012. The surveys were distributed between October 2013 and January 2014, and responses were recorded between October 2013 and April 2014.⁷⁷

The survey began with general questions about the respondent's company and its recent IPO, followed by specific questions about the company's experience with and exposure to patent demands surrounding major funding moments in the company's development. The survey continued with questions asking respondents to give subjective opinions and free-form responses about patent demands. The questions concluded with an opportunity for respondents to provide contact information if they were willing to speak further about their experiences with researchers. Participants were told that their responses would be reported anonymously. Thus, the data is anonymized and presented only in aggregate and anonymized form.

Seventy-two recipients started the survey, and 53 surveys were marked as completed between October 2013 and April 2014. Two modifications were made to the initial set of 53 "completed" surveys. Upon inspection of the data, two surveys marked as completed were removed because no responses were actually recorded on either survey. One survey marked as incomplete was added to the set of completed surveys because the respondent only omitted answers to the open-ended questions presented at the end of the survey. Therefore, the final data set presented in this study consists of responses to 52 completed surveys. The response rate was 13%,⁷⁸ and the survey sample represents over 9% of the total

76. For example, searching for publically available addresses could allow a researcher to determine whether a company follows an e-mail format of `firstname.lastname@company.com` or `fullname@company.com`.

77. The set of questions was submitted to the Western Institutional Review Board, which determined that the research met the exemption criteria for human subjects research under 45 CFR §46.101(b)(2). See Letter from W. Inst. Review Bd. to Robin Feldman (Sept. 4, 2013) (on file with authors).

78. For reference, the response rate was calculated as 52 completed surveys/406

identified population of 555 U.S. product companies with recent IPOs.

E. *Study Limitations*

The research for this study was conducted through a voluntary response survey. This method poses significant limitations to generalizing the findings to a wider population. First, companies may have been more or less willing to complete the survey depending on their experience with patent demands. For example, if a company has not faced significant patent-based threats or lawsuits, the potential respondent may feel that they could not add value to the survey by responding. Conversely, those who have been particularly affected by patent demands might have a far stronger desire to ensure their experiences are recorded. The resulting non-response bias could shift the results of the sample away from the actual characteristics of the population of recently public product companies. However, as discussed *infra*, some basic checks of our data set reveal that the general characteristics of our sample were similar to those of the entire population.

Using a survey-based research method also presents potential issues with accuracy. The responses provided represent only the respondents' recollections and subjective perceptions, and most data cannot be verified through public records or other independent means. For instance, it is not possible to independently verify respondents' answers to how many patent demands their companies have received, when the demands were made, and how much the companies have spent defending against patent demand claims. We can only use what private data is volunteered by a company's legal contact. The language of the questions themselves also introduces some subjectivity. We define "patent demands" as including "licensing demand letters, threats of litigation, [and] infringement lawsuits," leaving the judgment call of what crosses the threshold of "threat" up to the respondent when determining what constitutes a patent demand. Respondents may have erred on the side of reporting borderline patent-related encounters as "demands," especially since the set of respondents may be already skewed toward companies that have been particularly affected by patent demands.

Finally, the survey suffered from a low response rate and small sample size. Only 52 completed responses were included in the final dataset, for a response rate near 13%. While this does represent over 9% of the survey "population"—U.S. product companies issuing IPOs between 2007 and 2012—the sample size is small enough that statistical significance should not be inferred from any of the results. In fact, many questions have response totals below 52, especially those that applied to only a specific subset of respondents. While notable percentages, figures, and other results from the survey data are displayed and discussed below, any observations should be tempered by the small sample size. We attempt to be transparent by displaying survey counts (e.g. "11 out of 52 respondents") alongside

companies with identified contact information = 12.8%.

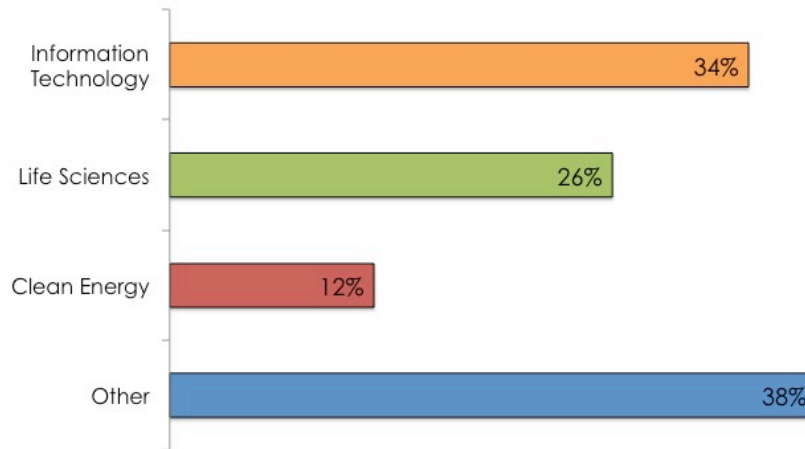
percentages when possible.

Despite these low response levels, the results represent an attempt at making quantitative progress toward understanding potential patterns in patent demand timing. They offer yet more anecdotal and observational data about the extent and timing of patent demands, especially activity that takes place outside of the courtroom, setting the foundation for additional research.

F. *General Characteristics of Respondents*

Respondents could categorize the sector in which their companies operate as information technology, life sciences, clean energy, or other, with the option of selecting all categories that apply. The ability to select multiple sectors resulted in percentages that sum to more than 100%. When “other” was selected, respondents had the ability to provide a short phrase describing their companies’ businesses. Two companies that were marked only as “other” were manually added to the information technology category after the completion of the survey. The two company sectors were described by the respondents as “internet” and “business intelligence software,” respectively, and a determination was made that the companies should also be included in the information technology category.

In what sector(s) do/does your company operate?



Note: Multiple sectors could be selected, so totals exceed 100 percent.

Of the company lawyers that responded, 34% indicated that their company operates in information technology, 26% of the companies operate in the life sciences, and 12% were categorized as clean energy firms. 38% of respondents chose to classify their companies’ sector as “other.” Phrases appearing multiple times in the “other” write-in section included “manufacturing,” “retail,” and “oil and gas.”

In order to determine whether these percentages matched those of the entire population of recently public companies, we returned to our full data set of 555 companies and manually assigned each company to one or more of the four sectors available as choices to the survey respondents.⁷⁹ The results were quite similar. 33% of the population was classified as information technology companies, compared to 34% of the sample. This indicates that our sample does not have a disproportionate number of information technology companies — a category of companies that we expected to be disproportionately affected by patent demands.

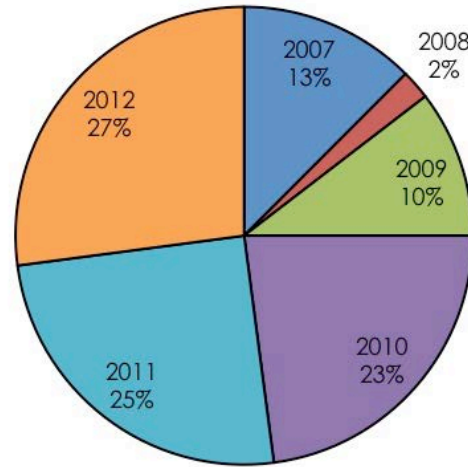
Sector	Sample (self-reported)	Population (manually coded)
Information Technology	34%	33%
Life Sciences	26%	18%
Clean Energy	12%	5%
Other	38%	50%
Total	110%	106%

All lawyers responding to this survey were members of a companies that completed an IPO between 2007 and 2012, and respondents were asked when their companies went public. The majority of companies represented in this survey—75%—went public between 2010 and 2012. Specifically, 23% went public in 2010, 25% in 2011, and 27% in 2012. The remainder conducted their IPOs in either 2007 (13%), 2008 (2%), or 2009 (10%), a down period consistent with the severe decrease in IPOs completed during the economic recession at the end of the decade.⁸⁰

79. Note that this check of the data set required us to manually code sectors for each company, while the sample characteristics were obtained through the self-classification of respondents. We classified companies using the “issuer” and “business description” fields from the Thomson Reuters SDC Platinum database, with some additional research conducted online when the nature of the company’s business was not immediately clear. If online searches still failed to describe the company’s business, the default sector selection was “Other.” Thus, it is possible that respondents did not use exactly the same criteria as we did when choosing sectors for classification. For example, we chose not to include companies related to natural gas as members of the “clean energy” category.

80. See Xiaohui Gao, Jay R. Ritter & Zhongyan Zhu, *Where Have All the IPOs Gone?*, 48 J. FIN. & QUANTITATIVE ANALYSIS 1663, at 1678 Table 4 (2013), http://journals.cambridge.org/download.php?file=%2FJFQ%2FJFQ48_06%2FS0022109014000015a.pdf&code=2b0f8455fdb3b9ea5d1724b76fbc7feb [http://perma.cc/UF6X-Y88G] (providing data for the number of domestic IPOs each year from 1980 to 2012).

When did your company go public?



These results are relatively consistent with the entire population. 63% of the population completed their IPO between 2010 and 2012, compared to 75% of respondents. The population also reflected the downward trend of IPOs completed in 2008 and 2009.⁸¹

It is possible that the slight over-representation in the respondents from companies with more recent IPOs may be a natural result of personnel turnover. Companies with more recent IPOs may be more likely to have the same personnel that they did at the time of the initial funding and IPO, making them more likely to respond to survey questions about those periods.

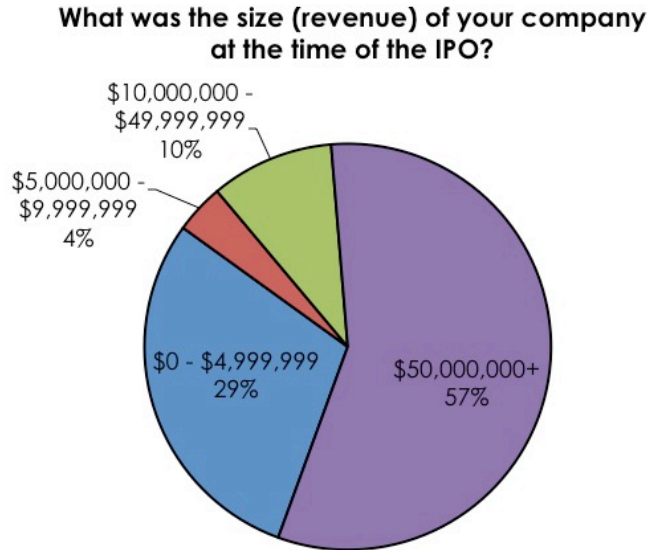
IPO Year	Sample (self-reported)	Population (manually coded)
2007	13%	25%
2008	2%	5%
2009	10%	7%
2010	23%	17%
2011	25%	22%
2012	27%	24%

Overall, the population data for sector and IPO date indicate that the basic characteristics of our respondents are fairly representative of the overall population. This certainly does not rule out the possibility of non-response bias

81. Once again, the IPO dates from the sample were self-reported by the respondents, while we coded the population IPO dates using information from the SDC Platinum database. However, we would not any expect any difference between the self-reported and manually coded dates because the IPO issue date is a fact not subject to subjective classification judgments.

among respondents, but it does demonstrate that our sample is not *prima facie* unrepresentative of the population.

The respondents also were asked about the size of their companies at the times of the companies' IPOs in terms of revenue. A majority (57%) of respondents said their companies had over \$50 million in annual revenue at the time of their IPOs. Twenty-nine percent had revenues under \$5 million, 4% indicated revenues between \$5 million and \$10 million, and the remaining 10% worked for companies with revenues between \$10 million and \$50 million at the time of their IPOs.⁸²



II. RESULTS

The Article divides the results into three primary Subparts. The first Subpart explores the extent of patent demands against recently public product companies at four specific points in their life cycles—the period before receiving the first round of venture capital funding, the year after receiving the first round of funding, the period between declaring an intent to go public (filing an S-1) and conducting the IPO, and the year following the completion of the IPO. These periods *also* will be grouped together as two broader events for consideration: namely, the period surrounding the first round of venture capital funding and the period surrounding the completion of the companies' IPOs. The first Subpart also considers the types of entities that issued patent demands at each stage.

82. The SDC Platinum database did not include a field for pre-IPO annual revenue, so we did not conduct a comparison of the population data to the sample data.

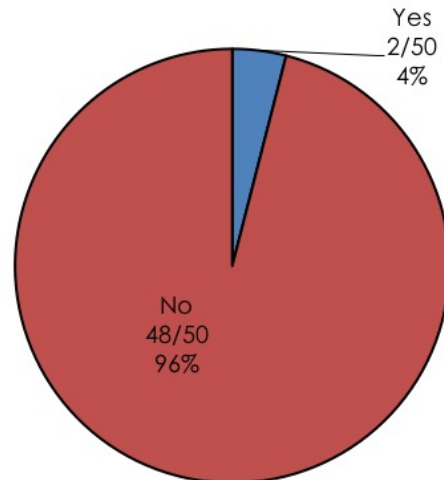
The second Subpart discusses interesting drill-down results about the incidence of patent demands, specifically referring to patterns of patent demand exposure for particular sectors such as information technology and the life sciences. The third Subpart explores the perceptions of company lawyers pertaining to the impact of patent demands on their companies and their industries, including some estimates of the monetary impact companies face in defending against patent demands.

A. *The Extent of Patent Demands Against Recently Public Companies*

In each of four questions, company lawyers were asked whether their companies received patent demands during one of four periods: the period before the first round of venture funding, the year after receiving the first funding round, the period between declaring an intent to go public (filing an S-1) and conducting the IPO, and the year after the IPO. Patent demands were defined on a broad scale, encompassing both threats and actual lawsuits. Examples of patent demands provided in the survey language were “licensing demand letters, threats of litigation, [and] infringement lawsuits.” The language was intentionally broad so as to include all patent-related legal activity that could affect a company’s business or costs.

Before the first round of venture capital funding, the survey responses indicated very low levels of patent demand activity among all responding companies. Only two of fifty responding company lawyers said they received any sort of patent demand at this point in their company’s development.

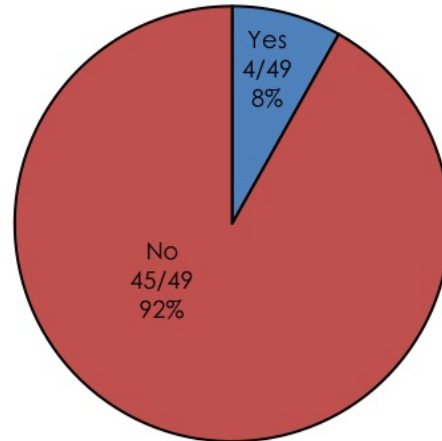
Did your company receive patent demands prior to receiving the first venture capital round?



No evidence was found of patent demand activity timed to the year immediately following the first venture capital round. Only four of forty-nine

respondents reported receiving patent demands during the year following the first funding round.

Did your company receive patent demands within one year after receiving the first venture capital round?



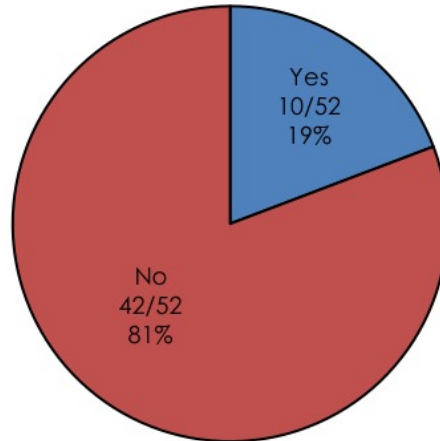
When these two periods are combined for analysis—the periods before and directly after the first round of venture capital funding—the number of companies receiving demands was still very small. Making sure not to double-count companies that received patent demands *both* before *and* after the first round, just five of fifty responding companies reported patent demand activity surrounding the first funding round. Thus, there is no evidence that recently public companies were targeted for patent demands near their first major round of funding in a widespread manner.

There was, however, an indication that patent demand activity rose considerably as the survey companies worked through the IPO process. In the period between filing an S-1 with the SEC and actually completing the IPO, ten of the fifty-two responding companies, about one-fifth of the sample, reported receiving patent demands. This is a visible jump from the low patent demand activity recorded around the first venture capital funding event, and its significance is bolstered by the relatively short time period covered by this question. While all other periods examined in this study cover a year or more, the period between filing the initial S-1 and completing the IPO is often only a couple months in length.⁸³ The high number of demands over such a short period

83. PRICEWATERHOUSECOOPERS, *supra* note 49, at 47-53 (supporting the standard length of time between the Form S-1 filing and completing the IPO); *See* Myers, Contente, Millman & Roberts, *supra* note 49, at 32-33 (supporting a timeline of about 9-10 weeks from the draft Form S-1 filing to launch of the IPO).

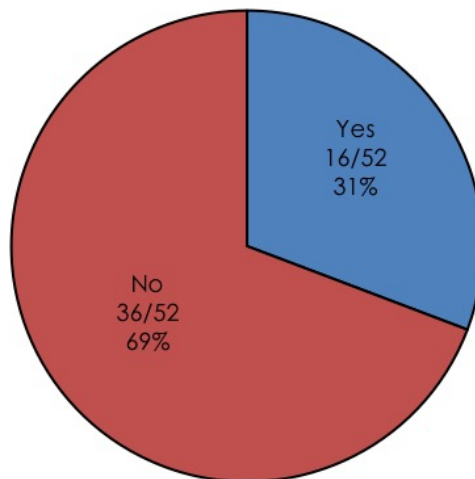
supports the conclusion that parties are systematically taking advantage of timing to extract patent-related revenues or to achieve some other goal. The final section of the Article will explore hypotheses to explain this behavior.

Did your company receive patent demands between filing the S-1 and completing the IPO?



The greatest amount of patent demand activity against recently public companies came within one year of the companies' IPOs. Sixteen of fifty-two respondents, or 31%, reported receiving patent demands during this period.

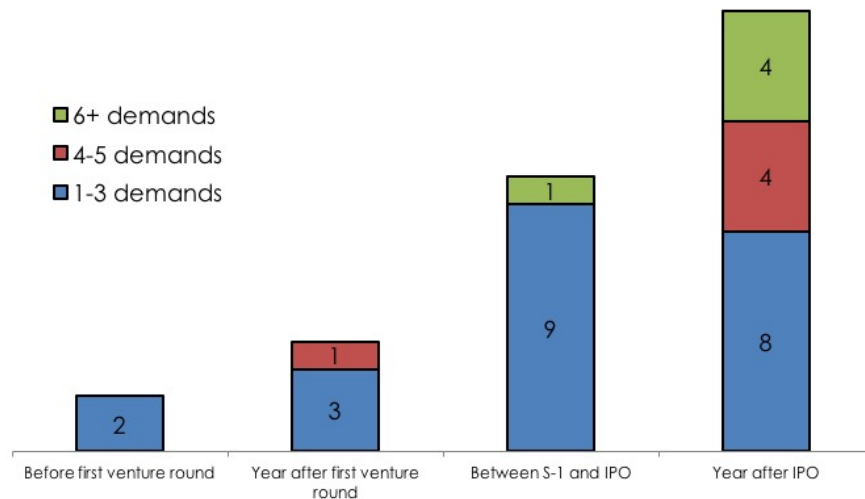
Did your company receive patent demands within one year after completing the IPO?



For each period, companies affected by patent demands had the opportunity to indicate whether demands originated from monetizers, other product companies, or both during the period.⁸⁴ In the period between the S-1 filing and the IPO, six of ten companies reported demands issued by patent monetizers, while only four of ten reported demands originating from other product companies. All but one company indicated receiving between one and three patent demands during this period, with one reporting six or more demands.

In the year after the IPO, the number of patent demands also rose sharply, as did the proportion of demands issued by monetizers. In earlier periods, all but one company had indicated receiving just one to three patent demands during the periods in question. In the year following the IPO, only 50% of companies receiving demands indicated receiving one to three demands. Twenty-five percent received four or five demands, while another 25% reported receiving *six or more* patent demands in the year following the IPO.

How many patent demands did your company receive during each period?

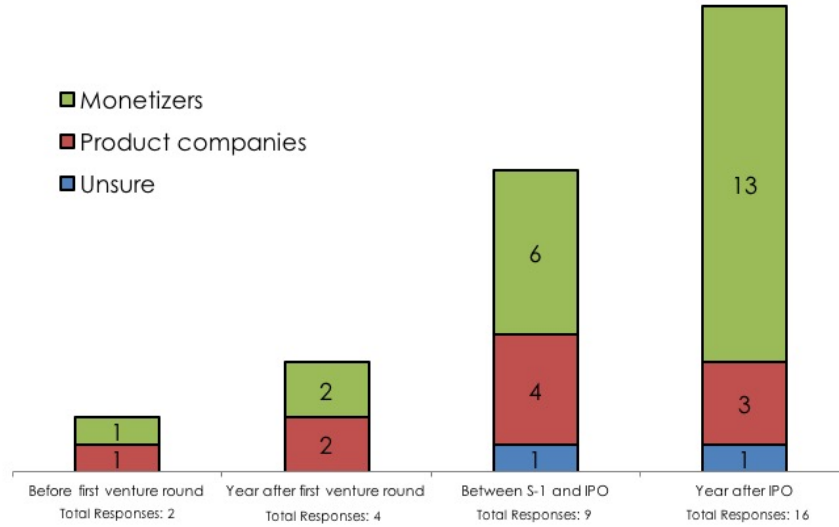


Meanwhile, thirteen of sixteen respondents, or 81%, reported that at least some patent demand activity against their company originated from patent monetizers in the year after the IPO, compared to just three companies noting demands issued by other product companies.⁸⁵

84. Respondents could also note if they were unclear about the identity of the entity issuing one or more of the demands, allowing response totals to exceed 100%.

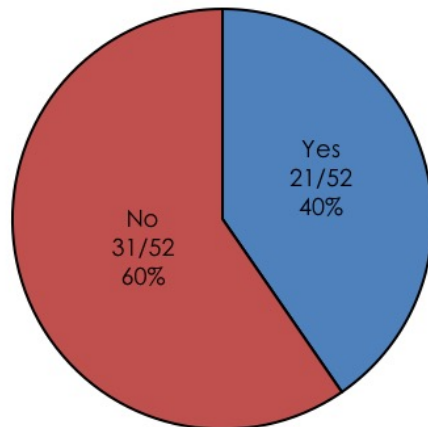
85. One company said they were unclear about the type of company that issued one or more of the patent demands, so the total exceeded 100% for this question.

What type of entity(ies) issued the demand(s) during each period? Choose all that apply.



When the two periods—the period between the S-1 filing and the IPO issue date, and the year following the IPO—were combined for analysis, twenty-one of fifty-two companies reported receiving patent demands either shortly before or after their IPO. This represents 40% of all respondents. This stands in direct contrast to the level of patent demand activity surrounding the first round of capital funding, when only five of fifty companies received patent demands.

**Did your company receive patent demands during either or both of the following periods:
 1) the period between the S-1 and the IPO
 2) the year after completing the IPO**



Note: Companies that received demands in both periods were not counted twice.

These results offer evidence that patent monetizers specifically time their demand activity to a company's IPO. Not only did a higher proportion of the sample receive patent demands just before and after their IPO than during the first funding round, but a higher proportion of companies received *a greater number of demands*, and *more* companies received those demands from patent monetizers.

The motive behind this potential timing pattern may have no single explanation. As previously explained, the anecdotal rationale is that patent monetizers take advantage of a company's public vulnerability during the IPO process to gain leverage, with the hope that companies are quick to agree to settlements and licensing fees in order to avoid press that might raise questions for potential investors.

One analogy to the "leverage" strategy is the near-universal litigation that arises near corporate mergers and takeovers.⁸⁶ Cain and Solomon found that almost 95% of large merger deals in 2014 experienced litigation—as they note, "if a target announces a takeover it should assume that it and its directors will be sued."⁸⁷ At the heart of this litigation, mostly filed by shareholders, might be a similar attempt to gain leverage and extract a settlement during a time of great scrutiny for a company. In a comprehensive study of all securities class actions, Baker and Griffith note that pending mergers are a classic example of a pressure point that might lead a business to settle at a point that is "earlier-than-optimal."⁸⁸ As they explain, "Our participants reported that the immediate impetus to settle is likely to be a corporate event—a change of CEO, merger, or acquisition transaction, or other corporate event that causes the defendant to wish to eliminate contingent liabilities."⁸⁹ The result is that, not unlike many defendants facing patent demands, the parties settle although it "may be more advantageous to continue to resist settlement."⁹⁰ The leverage explanation would function similarly for monetizers looking to take advantage of companies nearing their IPOs. A company's wish to "eliminate contingent liabilities" during a public corporate event supersedes the strength of any position it may otherwise have in the pending litigation. Thus, monetizers may be taking advantage of this pressure-point event following a path that securities litigation plaintiffs have pursued.

The leverage theory, however, does not fully explain why patent demand activity—at least in this survey—is higher *after* the IPO than before. The increase

86. We thank Abraham Cable for suggesting this connection.

87. Matthew D. Cain & Steven Davidoff Solomon, *Takeover Litigation in 2014* 2 tbl.A (working paper, Feb. 20, 2015), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2567902. [<http://perma.cc/NV2B-G7FZ>] In this case, "large" is defined as having a transaction size over \$100 million.

88. Tom Baker and Sean J. Griffith, *How The Merits Matter: Directors' and Officers' Insurance and Securities Settlements*, 157 U. PA. L. REV. 755, at 818 (2009). <https://www.law.upenn.edu/live/files/102-bakergriffith157upalrev7552009pdf>. [<https://perma.cc/98PU-AWHG>]

89. *Id.* at 778 n. 97.

90. *Id.* at 816.

could suggest that companies with “full pockets” from their recent IPO are perceived as a good target for those who would like to extract a demand settlement. One recent study supports this claim, finding that firms were 50% more likely to be sued by a monetizer following a large, positive cash shock.⁹¹ Cash shocks were also a “large and significant predictor” of the number of times firms were sued by monetizers.⁹² Importantly, these results held only for monetizers and *not* for product companies. Finally, the authors found that no other form of litigation evidences this type of cash targeting behavior—not torts, contracts, securities, environmental, or labor law.⁹³

Another explanation might combine the “leverage” and “full pockets” strategies. Companies are still publicly vulnerable in the weeks and months following the completion of their IPOs—early performance on the stock market is watched closely and factors into a company’s reputation and future outlook.⁹⁴ This vulnerability, plus the a company’s recent windfall from its IPO, might make litigation *more* attractive shortly after an IPO than shortly before.⁹⁵

Also lending credence to the “full pockets” theory is data from the survey, showing that fourteen of the sixteen companies (88%) that received patent demands in the year after their IPOs already had annual revenues over \$50 million at the time of their IPOs. A majority of companies receiving patent demands shortly *before* their IPOs also had revenues above \$50 million at the time of their IPOs. This result can be compared to the work of Chien as well as that of Bessen and Meurer, who describe patent demands as mainly directed against companies with less than \$10 million in annual revenue and overwhelmingly directed against companies with less than \$100 million in annual revenue.⁹⁶ Our survey asked only about patent demands near particular events in a company’s development, while Chien, Bessen, and Meurer looked at all patent demands, so our finding does not stand in direct contrast. But it suggests that patent monetizers may partially augment their strategy of inducing settlements from small startups in order to attack higher-value companies near or shortly after their IPOs, when the companies are particularly vulnerable and public valuations are particularly sensitive to setbacks.

91. Lauren Cohen, Umit G. Gurun & Scott Duke Kominers, *Patent Trolls: Evidence from Targeted Firms* 18 (Harvard Business School Working Paper No. 15-002, July 14, 2015), http://www.hbs.edu/faculty/Publication%20Files/15-002_6806e22c-a7a6-45d8-bf1a-78cad85f20f5.pdf.

92. *Id.* at 30.

93. *Id.* at 3.

94. See, e.g., Alexei Oreskovic, *Facebook Stock Almost Hits IPO Price, 14 Months After Rocky Debut*, REUTERS, (July 30, 2013), <http://www.reuters.com/article/2013/07/30/us-facebook-ipoprice-idUSBRE96T1CI20130730> [<http://perma.cc/S49T-F47V>] (detailing Facebook’s well-documented issues after its IPO that made the company’s stock, as Reuters puts it, “a Wall Street punch line”).

95. We again thank Abraham Cable for suggesting this explanation.

96. Bessen & Meurer, *supra* note 9, at 397-98; See Chien, *Startups and Patent Trolls*, *supra* note 7, at 471.; Bessen & Meurer, *supra* note 9, at 397-98.

Alternatively, a company's increased visibility surrounding an IPO also could lead others to notice its rise and consider making patent demands. Under this "information" theory, it is possible that the publicity from an IPO would allow a patent holder to realize that its patents have been infringed, thus leading to a perfectly legitimate patent claim. Further, the public disclosure of information approaching the IPO could reduce existing information asymmetries and give patent holders new information that was previously unavailable during the early history of the company. This information could provide a potential plaintiff with the necessary data to evaluate whether infringement is actually taking place and whether an infringement suit has a reasonable possibility of success.

Responses related to product company assertion, however, cast doubt on this "information" hypothesis. In particular, respondents did not receive more demands from product companies after the respondents' IPOs than after first funding rounds. The number of companies affected by demands from product companies remained small—and actually decreased in proportion as a result of increased monetizer demands—with each successive survey period.

Specifically, thirteen of sixteen respondents received demands from monetizers in the year following their IPOs, compared to just two of four companies in the year after the first venture rounds. In comparison, only three of sixteen companies attributed some of their patent demands to product companies in the year after their IPO, similar to the two companies that received demands from product companies in the year following their first venture round. The stark differential between the increase in monetizer activity and the relative stability of product company activity calls the "information" argument into question. If patent holders needed more information to launch their demands, we would predict the number of product company demands to rise along with monetizer demands. In other words, if the problem is lack of information until the IPO, we would expect both product companies and monetizers to increase their activity near the IPO. That pattern does not materialize here, and the fact that only monetizer activity increased suggests that other factors, such as the existence of deep pockets and favorable leverage are at play.

Regardless of the rationale, the initial evidence presented here indicates that patent monetizers are not targeting companies for lawsuits *solely* based on the legitimacy of their potential patent claims. While the survey did not ask respondents about their exposure to patent demands throughout all stages of their company's history, the data does show that few of these recently public companies received patent demands during the initial funding stage. But, in the period between filing the S-1 and the year after the IPO was completed, over 40% of the surveyed companies received patent demands, with many receiving more than one. We would not expect demand activity to differ so strongly between these two major funding events in a company's development if legitimacy of claims or likelihood of patent infringement are the only impetuses for patent demand activity. The legitimacy of a patent claim against a company should not improve as that company grows, nor should it increase once that company becomes publicly traded. Thus, if the claims were solely based on legitimacy, one would expect those

claims to be launched at a company, regardless of how deep the company's pockets were.

In fact, Love has suggested that patent monetizers assert patents later in their term than product companies and are responsible for most patent infringement claims litigated in the last few years of patent terms.⁹⁷ Considering that product companies mainly enforce their patents shortly after issuance, delays in asserting patents or clusters of demands near funding events would suggest motives other than pure enforcement for filing lawsuits or issuing demands.⁹⁸ The fact that demands are clustered near certain funding events casts doubt on "virtuous" innovation-boosting or inventor-protecting explanations for patent monetizer assertions, and suggests that patent monetizer activity is driven by the status of a target company and the potential lawsuit value that status might create. From this perspective, the study provides further evidence of the extent to which the economics of patent litigation, rather than the legitimacy of demands, drives patent assertion.

Should we be concerned about this behavior? Put another way, is it a problem that monetizer activity is driven by "full pockets," "leverage," or "visibility" motives? Many different forms of litigation are influenced by parties seeking defendants with "full pockets." From personal injury litigation to class action lawsuits, a rewarding payday is frequently part of the calculation behind filing a lawsuit. The collection of damages is one of our core legal mechanisms to right wrongs and compensate for harms. Nor is that motive necessarily malicious or marked by greed. Potential damages must exceed the costs of often-expensive litigation to be worthwhile; for that same reason, a patent holder cannot sue all potential infringers.

There is, of course, a threshold of monetary value before which it would not make sense for a patent holder to pursue litigation. That inflection point, however, should come long before an infringing company is undertaking its IPO. As mentioned above, a majority of companies that received patent demands shortly before or after their IPOs had annual revenues over \$50 million. One would expect a lawsuit to be valuable well before a company reached this level of

97. See Brian J. Love, *An Empirical Study of Patent Litigation Timing: Could A Patent Term Reduction Decimate Trolls Without Harming Innovators?*, 161 U. PA. L. REV. 1309, 1309 (2013), http://scholarship.law.upenn.edu/cgi/viewcontent.cgi?article=1388&context=penn_law_review [HTTP://PERMA.CC/BW4P-DMHQ] (concluding that NPEs "begin asserting their patents relatively late in the patent term" and "are the dominant source of patent enforcement in the final few years of the patent term"). However, Feldman, Ewing & Jeruss have observed that Love studied patents that mostly expired between 2010 and 2012. Since the general increase in monetizer litigation also took place during these years, the level of litigation that Love observed in the final years of patent terms may be related to this overall rise in litigation. For a more detailed discussion of this issue, see Feldman, Ewing & Jeruss, *AIA 500 Expanded*, *supra* note 1, at 71-75.

98. See *id.* at 1316-17 (discussing why product companies would be expected to assert their patents as soon as possible after issuance, and why monetizers would not follow the same timeline).

revenue, especially in light of the fact that many monetizer lawsuits are directed toward companies with far less revenue.

In addition, it is important to remember that patents are no more than government grants. Congress grants these privileges for a limited time and a limited purpose—specifically, to promote the progress of “the useful arts.”⁹⁹ To the extent society believes patents are being diverted to other purposes, such as rent-seeking activity that does not promote innovation, the government has both the right and the responsibility to respond.

Finally, IPO focused patent suits raise another concern regarding harm to innovation. By “lying in wait” for an opportune moment before making a patent demand, a patent holder may create circumstances in which a potentially infringing company digs itself deeper into the trenches of infringement. If a valid patent demand had been presented earlier, a company could have paid the appropriate license fee, innovated around the patent, or otherwise modified business plans in a way that allows the company to move forward while respecting existing intellectual property rights. Further, the passage of time may make it increasingly difficult for a company to present a defense of invalidity, especially in software and technology industries where evidence of prior use on websites and in code may be deleted or muddled through constant updating and iteration.¹⁰⁰

In a recent *en banc* opinion, the Federal Circuit applied similar reasoning in an opinion upholding *laches* as a defense to bar recovery of pre-suit damages in patent infringement cases where delay in bringing suit is “unreasonable and inexcusable” and caused the alleged infringer to suffer “material prejudice.”¹⁰¹ Giving an example of where a *laches* defense might be justifiable, the Federal Circuit said the following:

“For example, in the medical device industry, a company may independently develop an invention and spend enormous sums of money to usher the resultant product through regulatory approval and marketing, only to have a patentee emerge six years later to seek the most profitable six years of revenues.”¹⁰²

99. See U.S. CONST., art. I, § 8 (authorizing Congress to grant patent rights to promote the progress of “useful arts”).

100. See Brief of Electronic Frontier Foundation and Public Knowledge as Amici Curiae Supporting Defendants-Appellees, *SCA Hygiene Prods. v. First Quality Baby Prods.*, No. 2013-1564, 2015 WL 5474261 (Fed. Cir. Sept. 18, 2015) (*en banc*) (No. 201 at *8-13), https://www.eff.org/files/2015/04/28/eff_amicus_sca_v_first_quality.pdf (explaining the impact of delayed suits in high technology industries).

101. *SCA Hygiene Prods. v. First Quality Baby Prods.*, No. 2013-1564, 2015 WL 5474261, at *3 (Fed. Cir. Sept. 18, 2015) (*en banc*) (citing *A.C. Aukerman Co. v. R.L. Chiades Const. Co.*, 960 F.2d 1020, 1028 (Fed. Cir. 1992)).

102. *SCA Hygiene*, 2015 WL 5474261, at *15 (giving an example of a situation where lawsuit delay can cause harm, thus distinguishing patent from copyright, a field in which a *laches* defense is not permitted and in which independent invention can serve as a defense). The quote refers to the specific period of “six years” because 35 U.S.C. § 286 limits recovery of damages to

The IPO situation is comparable. If a patent holder chooses to sue near a company's IPO just because of opportune timing, the defendant's infringing behavior likely began years before the IPO. During the delay in bringing suit, the company continues with product or service development, only to be hit by a demand during their most publicly vulnerable moment.

One could argue that any sympathy, however, would be simply a deference to willful ignorance. Patents are published and publicly disclosed, after all, and companies should be on notice of any potential infringement. This argument assumes, however, that all patent claims are well-written, that a patent's scope is clearly defined, and that companies can anticipate which of the myriad claims in the millions of patents outstanding will be launched at them. None of these factors appears to be true in the modern patent system.¹⁰³

The harm to society comes in the form of deadweight loss and opportunity cost—deadweight loss in the form of wasted spending on products and innovations long after an infringement claim was viable, and opportunity cost in the form of alternative ventures that could have been explored if a legitimate demand was brought in due course. As a brief quoted by the Federal Circuit lamented, “there is a recurring risk that a stale patent claim will inflict significant hardship on a defendant who has lost the meaningful ability to choose between alternative technologies and whose investment in research, development, and further innovation may be jeopardized.”¹⁰⁴

B. *The Extent of Patent Demands By Sector*

Potential patterns in the timing of patent demands were clearer for some industries. Excluding the group of companies that fell into the category of “other,” the most represented sector in the survey was information technology, with seventeen respondents (34%) choosing this sector.¹⁰⁵ Exploring this sector in particular is important to understanding the patent monetization issue. The rise in patent demands has particularly affected software and technology companies, mainly because many software patents suffer from obviousness or non-novel claims, making technology companies vulnerable to patent assertions even if

the six years prior to the complaint in patent infringement cases. *SCA Hygiene*, 2015 WL 5474261, at *7.

103. ROBIN FELDMAN, *RETHINKING PATENT LAW 2* (2012) (describing the many causes of uncertainty in the boundaries of patent rights); see also U.S. GOV'T ACCOUNTABILITY OFFICE GAO-13-465, *INTELLECTUAL PROPERTY: ASSESSING FACTORS THAT AFFECT PATENT INFRINGEMENT LITIGATION COULD HELP IMPROVE PATENT QUALITY* 45 (2013); Mark A. Lemley, Essay, *Rational Ignorance at the Patent Office*, 95 N.W. U. L. REV. 1495, 1500–01 (2001).

104. Brief of Dell, Inc. et al. as Amici Curiae Supporting Defendants-Appellees, *SCA Hygiene Prods. v. First Quality Baby Prods.*, No. 2013-1564, 2015 WL 5474261 (Fed. Cir. Sept. 18, 2015) (en banc) (No. 198 at *27), quoted in *SCA Hygiene*, 2015 WL 5474261, at *15.

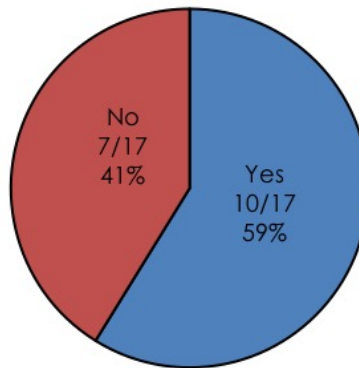
105. Respondents could identify more than one sector for their company.

infringement claims would likely be unsuccessful in court.¹⁰⁶

None of the seventeen information technology respondents reported receiving patent demands either before the first round of venture capital funding or in the year following the funding round. The sample size for this cross-section is, of course, quite small, but it offers the suggestion that information technology companies are receiving few patent demands while they are still in their relative infancy.

In contrast, a higher proportion—five of seventeen (29%)—of information technology companies received demands between the S-1 filing and IPO issue date. During the combined period between the S-1 and the year after the IPO issue date, ten of the seventeen information technology respondents (59%) said they received patent demands. The small sample size does not allow us to determine whether this finding is statistically significant or significantly different from the proportion of all respondents receiving patent demands near their IPOs (40%). However, the sheer disparity in patent demand activity—with no IT companies affected during the initial funding stage and a *majority* affected near their IPOs—is suggestive of a larger trend. It is yet another indication that technology companies are disproportionately affected by patent demand activity.

**Information Technology companies only —
Did your company receive patent demands during either or
both of the following periods:
1) the period between the S-1 and the IPO
2) the year after completing the IPO**



Note: Companies that received demands in both periods were not counted twice.

A sizable majority of information technology companies reported that the demands originated from patent monetizers rather than from other product companies. In each of the two near-IPO periods—shortly before the IPO and the year after the IPO—just one company reported receiving demands from another

106. See Section I, *supra*, (discussing the fact that the complexity of the patent system and high costs of litigation encourage settlements and extraction of licensing fees regardless of whether the patent holder is likely to prevail).

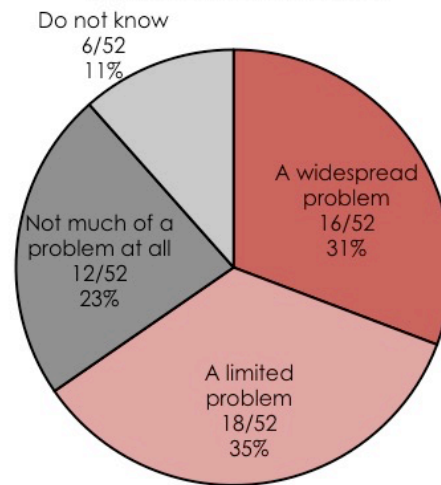
product company. All other patent demands were attributed to patent monetizers.

Similar, but less dramatic patterns were observed from the small sets of life science and clean energy companies that responded to the survey. Little to no patent demand activity was reported surrounding the first round of venture capital funding. For companies in the life sciences, patent demand activity increased surrounding the IPO but remained minimal. Half—three of six—of the companies that identified as members of the clean energy sector reported receiving patent demands in one or both of the periods surrounding the IPO.

C. *The Impact of Patent Demands Against Recently Public Companies*

The survey also allowed respondents to provide subjective feedback about the impact of patent demands. Company lawyers were first asked whether patent demands are a significant problem in their sector or industry. A large majority of respondents (thirty-four of fifty-two respondents, or 66%) agreed that patent demands were a “problem” in their sectors, with 31% labeling them a “widespread problem” and 35% calling them a “limited problem.” Only twelve respondents (23%) said patent demands were “not much of a problem at all.”

How much of a problem are patent demands against startup companies in your sector?

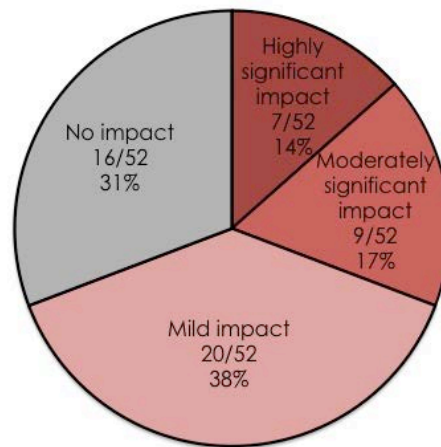


Information technology companies, which incurred higher levels of patent demand activity than any other sector in the survey, found patent demands to be especially problematic. All seventeen responding IT companies said patent demands were a “problem” in information technology, with eleven of seventeen (65%) calling them a “widespread problem.”

Respondents were then asked a narrower question: have patent demands had

a significant impact on your company? Some examples of “impact” given in the survey were “distracting management,” “expending resources,” and “altering business plans.”¹⁰⁷ Here, thirty-six of fifty-two respondents (68%) said patent demands had an impact, though only sixteen (30%) said they had a “highly significant impact” or a “moderately significant impact.” The most common choice, made by twenty respondents (38%), was that patent demands had only a “mild impact” on their companies. Sixteen respondents (31%) said they had “no impact.”

Have patent demands had a significant impact on your company?



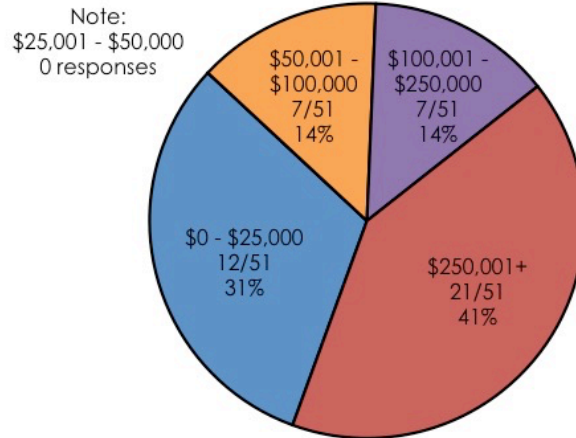
Fifteen of seventeen information technology company lawyers (88%) reported that patent demands had an impact on their company, with eleven (65%) saying the impact was either “highly significant” or “moderately significant.”

Respondents also had the opportunity to provide an estimate of the costs their companies have faced in responding to patent demands since their inception—both within and outside of the survey periods. As defined by the survey, costs could include “time for company officers and employees, costs of outside counsel and consultants, or other costs.” Twenty-one of fifty-one respondents (41%) reported spending more than \$250,000 to prepare for or defend against patent demands. Sixteen respondents (31%) said they had only spent \$0-\$25,000 responding to demands. Twelve of the twenty-one respondents who spent more than \$250,000 were classified as information technology companies, representing more than two-thirds of the IT companies surveyed. Respondents who chose the “more than \$250,000” option also had the ability to write in the amount spent defending

107. Similar descriptions were used by Chien, *Startups and Patent Trolls*, *supra* note 7, at 472, 474-75 (describing examples and extent of “significant operational impacts”).

against patent demands. Respondents who made use of this option most often stated costs in the *millions*, with one reporting costs “over \$25,000,000.”

Roughly how much has your company spent since its inception to prepare for or defend against patent demands?



Notably, when the data set was narrowed to include only respondents who also reported receiving patent demands during one or more of the four periods examined in the survey, 14 of 21 respondents (67%) reported spending above \$250,000. Only one affected company said they spent \$25,000 or less, signifying that most of the twelve respondents in the full survey set who chose the under-\$25,000 category did not face exposure to patent demands surrounding their first round of funding or their IPO.¹⁰⁸

III. CONCLUSIONS

Our survey of company lawyers at recently public companies lends quantitative evidence to an ongoing narrative: patent monetizers systematically launch patent assertion activity near company IPOs, especially against companies in information technology. We found no evidence of activity timed to a company's first round of venture funding. The high number of patent demands near IPOs, however, stood in sharp contrast. The activity level, with 40% of respondents receiving patent demands shortly before or after the completion of their companies' IPOs, is especially remarkable when considering the normally short timeframe between an S-1 filing and the first day of trading. Respondents reported that monetizers made the majority of these patent demands. Moreover, many

108. Recall that the question asked respondents to estimate their companies' total spending on patent demands *since inception*, including demands that took place outside of the four survey periods.

companies received four or more demands in the year after their IPOs.

As expected, information technology companies were disproportionately affected, with more than half of responding companies receiving demands either before or after their IPOs. Almost of all of these demands were attributed to patent monetizers.

Similar to other surveys, respondents continued to overwhelmingly agree that patent demands were problematic in their sectors, with many also believing that patent demands had specific negative impacts on their companies. Nearly all information technology companies agreed with these statements.

Despite a limited sample, the evidence presented supports the existence of a strategy among monetizers to pursue demands against companies during one of the most public and vulnerable periods of their development—the completion and aftermath of their IPOs. These patent demands serve to extract settlements and licensing fees knowing that companies have insufficient time, funds, and human capital to spend on a thoughtful examination of the claims. With a foundation established, our findings will hopefully spur further study of strategic behavior in the market for patent monetization.

IV. APPENDIX: SURVEY INSTRUMENT

1. What sector(s) is your company in? (Mark all that apply)

- Information Technology
- Life Sciences
- Clean Energy
- Other

2. When did your company go public?

- 2007
- 2008
- 2009
- 2010
- 2011
- 2012

3. What was the size of your company (in terms of revenue) at the time of the IPO?

- \$0 - \$4,999,999
- \$5M - \$9,999,999
- \$10M - \$49,999,999
- \$50M +

4. Did your company receive patent demands (for example, licensing demand letters, threats of litigation, or infringement lawsuits) prior to receiving the first venture capital round?

- Yes
- No

5. (If response to 4 was 'yes') How many patent demands did you receive prior to receiving the first venture capital round?

- 1-3
- 4-5
- 6+

6. (If response to 4 was 'yes') What type of entity(ies) issued the demand(s)? Mark all that apply.

- Entities whose core activity is licensing and/or litigating patents
- Entities whose core activity is selling products or services other than those related to patents
- Do not know

7. Did your company receive patent demands (for example, licensing demand letters, threats of litigation, or infringement lawsuits) within one year after receiving the first venture capital round?

- Yes
- No

8. (If response to 7 was 'yes') How many patent demands did your company receive within one year after receiving the first venture capital round?

- 1-3
- 4-5
- 6+

9. (If response to 7 was 'yes') What type of entity(ies) issued the demand(s)? Mark all that apply.

- Entities whose core activity is licensing and/or litigating patents
- Entities whose core activity is selling products or services other than those related to patents
- Do not know

10. Did your company receive patent demands (for example, licensing demand letters, threats of litigations, or infringement lawsuits) between the time that you filed an S1, declaring intent to go public, and when you completed the IPO?

- Yes
- No

11. (If response to 10 was 'yes') How many patent demands did your company receive between the time that you filed an S1, declaring intent to go public, and when you completed the IPO?

- 1-3
- 4-5
- 6+

12. (If response to 10 was 'yes') What type of entity(ies) issued the demand(s)? Mark all that apply.

- Entities whose core activity is licensing and/or litigating patents
- Entities whose core activity is selling products or services other than those related to patents
- Do not know

13. Did your company receive patent demands (for example, licensing demand letters, threats of litigation, or infringement lawsuits) within one year after completing the IPO?

- Yes
- No

14. (If response to 13 was 'yes') How many patent demands did your company receive within one year after completing the IPO?

- 1-3
- 4-5
- 6+

15. (If response to 13 was 'yes') What type of entity(ies) issued the demand(s)? Mark all that apply.

- Entities whose core activity is licensing and/or litigating patents
- Entities whose core activity is selling products or services other than those related to patents
- Do not know

16. How much of a problem are patent demands against startup companies in your industry sector?

- A widespread problem
- A limited problem
- Not much of a problem at all
- Do not know

17. Have patent demands had a significant impact on your company, for example, distracting management, expending resources or altering business plans?

- Highly significant impact
- Moderately significant impact
- Mild impact
- No impact
- Do not know

18. Please describe that impact.

[open answer format]

19. Roughly how much has your company spent since its inception to prepare for or defend against patent demands? (Such costs could include time for company officers and employees, costs of outside counsel and consultants, or other costs).

- \$0 - \$25,000
- \$25,000 - \$50,000
- \$50,001 - \$100,000
- \$100,001 - \$250,000
- More than \$250,000 (Please specify)

20. Do you have any general comments about your experience with patent demands?

[open answer format]

21. Would you be willing to talk further with researchers about your experiences with patent assertion and your views on the topic? (Confidentiality would be protected.)

- Yes
- No

22. (If response to 21 was 'yes') Please provide your information below so that we can contact you about further discussions of your experiences.

[open answer format with blanks for appellation, first name, last name, and email address]