

5-15-2019

Government-Sponsored Patent Monetizing Entities

Garry A. Gabison

Follow this and additional works at: <https://digitalcommons.pepperdine.edu/jbel>



Part of the [Intellectual Property Law Commons](#), and the [International Trade Law Commons](#)

Recommended Citation

Garry A. Gabison, *Government-Sponsored Patent Monetizing Entities*, 12 J. Bus. Entrepreneurship & L. 229 (2019)

Available at: <https://digitalcommons.pepperdine.edu/jbel/vol12/iss1/9>

This Article is brought to you for free and open access by the Caruso School of Law at Pepperdine Digital Commons. It has been accepted for inclusion in The Journal of Business, Entrepreneurship & the Law by an authorized editor of Pepperdine Digital Commons. For more information, please contact bailey.berry@pepperdine.edu.

GOVERNMENT-SPONSORED PATENT MONETIZING ENTITIES

Garry A. Gabison¹

ABSTRACT	229
INTRODUCTION	230
I. INEFFICIENT PATENT SYSTEM	232
A. <i>Failure to License IP</i>	233
B. <i>Imperfect Enforcement of IP</i>	235
C. <i>Governmental Efforts to Address Licensing & Enforcement Failures</i>	238
II. GOVERNMENT SPONSORED PMES	243
A. <i>Intellectual Discovery</i>	243
B. <i>IP Bridge</i>	247
C. <i>France Brevets</i>	248
III. IS IT TIME FOR A US SPONSORED PME?	250
A. <i>New Role for the USPTO</i>	250
B. <i>Rent seeking behavior: focusing on post-commercial enforcement</i>	254
C. <i>International trade and nationalism</i>	257
CONCLUSION.....	263

ABSTRACT

Government-sponsored patent assertion entities have materialized all over the world. This article looks at the market failure associated with the patent system. These entities have an opportunity to address these market inefficiencies. But, these entities can damage the innovation more by decreasing competition and increasing protectionism. This article looks at three such entities and argues that the US could use such an entity.

¹ Lecturer of Law, Economics & Regulations at Queen Mary University of London, Centre for Commercial Law Studies. The first draft of this article was written while visiting at the Georgia Institute of Technology. J.D. from the University of Virginia School of Law and Ph.D. in Economics from Yale University. I would like to thank Nikolaus Thumm for our conversations.

INTRODUCTION

Some entities have come under fire because they have started to profitably enforce patents.² Some scholars have argued that these entities constitute a deadweight loss on society: these entities impose costs on society (e.g., court costs³) without creating benefits (e.g., knowledge transfer or innovations⁴).

These entities have also received the attention of policymakers. In the U.S., Congress passed the Leah-Smith America Invents Act (AIA).⁵ The US Government Accountability Office's study assessed the entities' impact on litigation volume.⁶ The White House published its own report urging policymakers to temper the entities' societal impact.⁷ Some states acted,⁸ but their actions were limited because patentability remains a federal question.⁹ These entities have drawn the interest of policymakers in Europe, as well.¹⁰

² Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117, 2126 (2013). Here, the authors discuss some of the rhetoric behind patent trolls and their enforcement of patents.

³ James Bessen & Michael J. Meurer, *The Direct Costs from NPE Disputes*, 99 CORNELL L. REV. 387 (2014). In this piece, the authors estimate that non-practicing entities cost accrued \$29 billions of direct costs in 2011.

⁴ Robin Feldman & Mark A. Lemley, *Does Patent Licensing Demands Mean Innovation?*, 101 IOWA L. REV. 137, 168–69 (2015) (finding that knowledge transfer—in the form of technical knowledge, personnel transfer, and joint venture creation—do not occur when patent assertion entities enforce patents).

⁵ Leah-Smith America Invents Act, Pub. L. No. 112–29, 125 Stat 284 (2011) (codified in sections of 35 U.S.C. § 1 (2000)). The AIA changed the joinder rule in patent enforcement cases in order to hinder non-practicing entity suits, which had a tendency to join multiple defendants to the same suit in order to take advantage of economies of scale. Tracie L. Bryant, *The America Invents Act: Slaying Trolls, Limiting Joinder*, 25 HARV. J. OF L. & TECH. 673 (2012).

⁶ U.S. GOV'T ACCOUNTABILITY OFF., GAO-13-465, INTELLECTUAL PROPERTY: ASSESSING FACTORS THAT AFFECT PATENT INFRINGEMENT LITIGATION COULD HELP IMPROVE PATENT QUALITY 14 (2013) [hereinafter GAO Study]. "Congress, among others, ha[s] raised concerns that patent infringement litigation by NPEs is increasing . . . AIA mandates that GAO conduct a study on the consequences of patent litigation by NPEs." *Id.* at 3–4.

⁷ Executive Office of the President, *Patent Assertion and U.S. Innovation*, WHITE HOUSE (June 2013), https://obamawhitehouse.archives.gov/sites/default/files/docs/patent_report.pdf.

⁸ E.g., Ryan DeSisto, *Vermont vs. the Patent Troll: Is State Action a Bridge Too Far*, 48 SUFFOLK U. L. REV. 109, 123–129 (2015) (discussing the actions of Vermont policymakers in combatting patent assertion entities).

⁹ Under the Patent Act, patentability remains the domain of Federal courts. 35 U.S.C. § 1 (2000). Thus, state courts can be pre-empted to deal with these Federal issues. See, e.g., Paul R. Gugliuzza, *Patent trolls and preemption*, 101 VA. L. REV. 1579 (2015).

¹⁰ Europe Economics, *Patent Assertion Entities in Europe: Their impact on innovation and knowledge transfer in ICT markets*, JRC SCI. FOR POL'Y REP. (Thumm, Nikolaus & Gary Gabison eds., 2016); Dr. Luke McDonagh, *Exploring Perspectives of the Unified Patent Court and Unitary Patent within the Business and Legal Communities*, A REPORT COMMISSIONED BY THE UK INTELLECTUAL PROPERTY OFFICE, 26–27 (2014) (investigating the potential impact of patent trolling).

Entities enforcing patents cover a broad range of issues. Not all such entities and their enforcement behavior should be discouraged. The threat of enforcement is a necessary part of the patent system.

The US created the Intellectual Property (IP) system to incentivize innovation.¹¹ This system was important enough for the writers of the U.S. Constitution to have included it in their draft:¹² the writers of the Constitution arguably intended to create a well-functioning right to exclude. Such functioning requires an enforcement system. Such enforcement system may require the involvement of a public enforcer.

This paper focuses on government sponsored patent monetizing and asserting entities.¹³ Patent monetizing entities (PMEs) help patent holders license their patents to or enforce them against implementers.¹⁴ PMEs are the agents of the patent holder.¹⁵ Patent assertion entities (PAEs) buy or license patents from inventors to license these patents to or enforce them against implementers.¹⁶ The distinction revolves around who retains control over the licensing or enforcement.¹⁷

This paper argues that the IP system creates two inefficiencies: inefficient licensing and inefficient enforcement. Licensing and enforcement raise distinct challenges that a centralized government agency could resolve.

This paper investigates PAEs and PMEs. Section I discusses the market failures of the patent system. First, patents can be difficult to match with technology implementers, leaving valuable patents unexploited. Second, patents are expensive to enforce, leading to imperfect enforcement and free-riding opportunities, as well as rent-seeking enforcement. Indirect governmental approaches offer the theoretical upsides that may never realize. Direct governmental involvement could enhance the patent system.

Section II discusses the practical examples of such involvement. It discusses in more detail the business model of three governmental

and arguing that the effects will be minimal in the UK); Marcel de Heide, Oana van der Togt, Noëlle Fischer, & Jos Winnink, *Study on the changing role of Intellectual Property in the semiconductor industry – including non-practicing entities*, EUROPEAN COMMISSION (2014).

¹¹ See generally GAO Study, *supra* note 6; Executive Office of the President, *supra* note 7; Heide, van der Togt, Fischer, & Winnink, *supra* note 10.

¹² "To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries." U.S. CONST. art. I § 8.

¹³ Other articles have referred to these entities as Sovereign Patent Funds; however, some of these funds are fully autonomous. *E.g.*, Xuan-Thao Nguyen, *Sovereign Patent Funds*, 51 U.C. DAVIS L. REV. 1257 (2018). Section 4 discusses the difference in more detail.

¹⁴ See GAO Study, *supra* note 6.

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ See Nguyen, *supra* note 13.

sponsored entities and their activities in the US. Scholars have heavily criticized these entities. First, the entities do not advance market transparency. Instead, their government sponsorship has limitations that force the entities to behave like private PAEs. Second, the entities' links to governments open the door to nationalist and protectionist criticisms (and international sanctions).

Section III argues that assuming that the IP system can incentivize innovation, these government sponsored entities can play an important role and the US government could implement such an entity. The USPTO could be the prime agency to carry out this role. It already has the patent expertise, which could be leverage. Beyond its economies of scope, such an agency could benefit the whole industry by encouraging and disseminating good practices in an industry often maligned.

I. INEFFICIENT PATENT SYSTEM

The public agencies enforce private rights on a regular basis.¹⁸ Policymakers often create these public enforcers when the policymakers want to rectify a market failure.¹⁹

US policymakers created the IP system to address such a market inefficiency with respect to knowledge.²⁰ Knowledge is non-rival and non-excludable. Because it is non-excludable, inventors cannot prevent others from implementing their creation. Because inventors cannot stop others from using their creation, they cannot harvest the benefit of their work. Because they cannot fully internalize the benefit of their work, they will undersupply knowledge.

The IP system made knowledge excludable.²¹ Therefore, inventors could profit from their creation, incentivizing them to supply knowledge.²² However, by solving one inefficiency, policymakers created an IP system laden with other market failures.

¹⁸ Garry A. Gabison, *Public Enforcement of Private Rights*, 18 FLA. COASTAL L. REV. 207 (2017)

¹⁹ See Nguyen, *supra* note 13.

²⁰ *Id.*

²¹ See U.S. CONST. art. I § 8, *infra* note 22.

²² The writer of the US constitution expressed the need to incentivize inventors. They wanted to "promote the [p]rogress of [s]cience and useful [a]rts, by securing for limited [t]imes to [a]uthors and [i]nventors the exclusive [r]ight to their respective [w]ritings and [d]iscoveries." U.S. CONST. art. I § 8. Some have questioned whether the patent system fixes these market inefficiencies and some have argued that alternative systems would be more efficient. See Michele Boldrin & David K. Levine, *The Case Against Patents*, 27 J. OF ECON. PERSP. 3 (2013) (arguing that a weaker patent system leads to more innovation when controlling for the competitive environment).

This section discusses two main issues: (1) the lack of knowledge transfer; and (2) the inefficient patent enforcement. Then, this section discusses what the government has attempted to do to address these inefficiencies.

A. Failure to License IP

This section discusses how the patent system fails to encourage innovation transfer because the demand and supply for the innovator's knowledge fail to meet. This section assumes that the patent holder does not exploit his or her patent. Instead, she or he wants to monetize it.

Knowledge transfer of patented innovation generally takes two forms: licensing and a sale. When a patent holder offers a license, she or he can offer two types of licenses: an exclusive license and a non-exclusive license.²³ During a sale, she or he usually loses control over its exploitation method.²⁴ In some cases, she or he restricts the patent before it sells (e.g.

²³ Exclusive license may take many forms. The patent holder may opt to grant an exclusive license instead of selling its patent because the license remains limited in scope, e.g. territory, use, time, etc. *E.g.*, *Waterman v. Mackenzie*, 138 U.S. 252, 255 (1891) (discussing the distinction between a license and an assignment where "[t]he patentee or his assigns may, by instrument in writing, assign, grant, and convey, either [1st,] the whole patent, comprising the exclusive right to make, use, and vend the invention throughout the United States; or [2nd,] an undivided part or share of that exclusive right; or [3rd,] the exclusive right under the patent within and throughout a specified part of the United States.").

²⁴ *Id.*

Fair Reasonable and Non-Discriminatory licensing terms,²⁵ license before sell,²⁶ etc.). Table 1 summarizes these methods of patent exploitations.

		Control over the knowledge transfer	
		Control	No Control
Inventor's patent ownership	Keep	Non-exclusive license (i.e. directly imposed restrictions)	Exclusive license
	Sell	Patent sold with previous licensing commitment (servitude-type control)	Unrestricted sell

Table 1: Patent enforcement methods

²⁵ Intellectual property rights have been compared to real property: a bundle of rights. Courts have recognized intellectual property rights as a bundle of rights. *See, e.g.,* *Stewart v. Abend*, 495 U.S. 207, 220 (1990) (stating that “[a]n author holds a bundle of exclusive rights in the copyrighted work, among them the right to copy and the right to incorporate the work into derivative works.”); *K Mart Corp. v. Cartier, Inc.*, 485 U.S. 176, 185–86 (1988) (stating that “[t]rademark law, like contract law, confers private rights, which are themselves rights of exclusion. It grants the trademark owner a bundle of such rights, one of which is the right to . . . bar foreign-made goods bearing that trademark.”); *Vaupel Textilmaschinen KG v. Meccanica Euro Italia SPA*, 944 F.2d 870, 875 (Fed. Cir. 1991) (stating that “[a] patent provides its owner with the right to exclude others from making, using, and selling the claimed invention. It is, in effect, a bundle of rights which may be divided and assigned, or retained in whole or part.”) (internal quotation omitted). The inventor can sell the whole bundle or sell only some rights. *Id.* In practice, inventors can create binding agreements that run with the patent from its inception – much like a servitude. *See, e.g.,* Jorge L. Contreras, *A Market Reliance Theory for FRAND Commitments and Other Patent Pledges*, 2 UTAH L. REV. 479, 536–38 (2015) (discussing the debate over the treatment of FRAND like a real property servitude). For example, an inventor can participate to a standard, declare his patent a standard essential patent (SEP), and commit to license this patent on fair reasonable and non-discriminatory (FRAND) terms. *Id.* These obligations (or limitations on enforcement) run with the patent. *Id.* “If a patentee can undo the FRAND commitment merely by selling its patents to someone who has not personally made that commitment, that comfort is illusory.” Mark A. Lemley & Carl Shapiro, *A Simple Approach to Setting Reasonable Royalties for Standard-Essential Patents*, 28 BERKELEY TECH. L. J. 1135, 1158 (2013). Thus, the court can use estoppel principles to ensure that if the original inventor committed to certain terms, he cannot circumvent these commitments by selling its patents. *Id.* at 1158–60.

²⁶ Defensive patent aggregators offer services where they purchase patents and offer licenses to their subscribers; to avoid that non-subscribers free-ride on their services, after granting a license to their subscriber, they resell the patent and non-subscribers are still faced with potential liability issues. *See, e.g.,* Andrei Hagiu & David B. Yoffie, *The New Patent Intermediaries: Platforms, Defensive Aggregators and Super-Aggregators*, 27 J. ECON. PERSP. 45, 58 (2013). This business method has been referred as “catch-and-release.” *Id.*

Patent holders often fail to license or sell their patents. One study found that a minority of companies licenses out their patents, but companies often wish to license more.²⁷ Most companies cite identifying licensing partners as the most important problem.²⁸ Surveyed patent holders more frequently cite matching with partners than issues surrounding licensing fees, negotiation costs, and technology advances.²⁹ Right holders and right exploiters have difficulty finding each other due to transaction costs (e.g., search cost, identifying the IP holder, etc.). Because of these transaction costs, individuals under-utilize these inventions.³⁰ Under-utilization leads to under-compensated inventors. The under-compensation disincentivizes inventors, which was the original market failure that the IP system sought to address.

B. Imperfect Enforcement of IP

This section focuses on the imperfect exclusory right. Patent holders can collect licensing fees because they have the right to stop others from using this knowledge. Without the right to exclude, the patent system fails because patents become worthless: (1) knowledge implementers free ride on the works of the knowledge creator; (2) inventors become less incentivized to innovate or inventors do not file a patent and rely on trade secrets;³¹ (3) either way, knowledge does not transfer.

This exclusory right is not self-enforceable. The patent holder must actively enforce these rights through the courts and administrative system.³² Much like licensing, assertion differs along two dimensions: (1) who owns the intellectual property,³³ and (2) who controls the enforcement methods. Table 2 models these assertion methods.

²⁷ Maria Pluvia Zuniga & Dominique Guellec, *Who Licenses out Patents and Why?: Lessons from a Business Survey*, OECD SCI., TECH. & INDUSTRY WORKING PAPERS (2009). "27% of Japanese companies declared to license patents to non-affiliated partners while the corresponding figure for European is 20%." *Id.* at 12. Forty-five percent of European companies and 80% of Japanese companies that already license want to license more. *Id.* at Table 11 & 12.

²⁸ See also Table 13.

²⁹ *Id.*

³⁰ The Coase theorem suggests that regardless of the initial allocation, a right will end up with the highest valuator if the initial right holder and the highest valuator can negotiate without transaction costs. Ronald H. Coase, *The Problem of Social Cost*, 3 J. L. & ECON. 1 (1960).

³¹ Petra Moser, *Innovation without Patents: Evidence from World's Fairs*, 55 J. L. & ECON. 43 (2012) (showing that inventors have a tendency to patent more once reverse engineering becomes easier).

³² For example, the US International Trade Commission can investigate alleged patent infringement by imported goods pursuant to 19 U.S.C. § 1337 and the Administrative Procedure Act. 19 U.S.C. § 1337 (2004). These investigations are referred as § 337 investigations. *Id.*

³³ While this paper focuses on the patents, entities that collect fees for their services can enforce copyrights. See, e.g., Matthew Sag, *Copyright Trolling, An Empirical Study*, 100 IOWA L. REV. 1105 (2015) (discussing PAEs in the copyright domain).

		Control over the assertion methods	
		Control	No Control
Inventor's patent ownership	Keep	Self-assertion (self-finance)	Delegated assertion (e.g., PME)
	Sell	Limited Control (possible servitude)	Third party assertion (e.g., PAE)

Table 2: Patent enforcement methods

The nuances of control and ownership may however live along a continuum.³⁴ Ownership determines who benefits from enforcement. The inventor benefits if he keeps the patent; otherwise the assignee benefits.³⁵ Control determines who directs the proceedings.³⁶ The table depicts four cases.

PAEs buy patents and assert them to profit.³⁷ In some cases, PAEs acquire patent encumbered with Fair Reasonable and Non-Discriminatory obligations.³⁸ With PMEs, the patent holder keeps ownership but may lose control of the litigation.³⁹ Beside control, the inventor may prefer selling because it guarantees revenues whereas keeping the patent leaves the inventor relying on an uncertain assertion strategy.⁴⁰ Depending on the quadrant, the inventor carries different portions of the enforcement costs. Since patent enforcement is costly, it cannot be complete.⁴¹

A patent holder may not enforce a valid patent claim because the enforcement costs outweigh the benefits. In 2013, the American Intellectual Property Law Association reported that the median patent suit costs about: \$700,000 if less than \$1 million is at risk; \$2 million if \$1 to \$10 million is at risk; \$3.3 million if \$10 to \$25 million is at risk; and \$5.5

³⁴ An FTC study found that “[u]nder some agreements, patent sellers agreed to assist with litigation, such as by making inventors available to testify, while in other agreements, the patent sellers retained authority to control certain aspects of the litigation or licensing activity.” Federal Trade Commission, *Patent Assertion Entity Activity: an FTC Study*, FTC, 49 (2016) [hereinafter *FTC Study*].

³⁵ *Id.*

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ Beside litigation costs, patent holders incur other costs (e.g., infringement detection), which make enforcement also less likely. *Id.*

million if more than \$25 million is at risk.⁴² For the low and medium value claims, the median costs can outweigh the benefits.

To address this problem, patent holders can exploit economies of scale. Low value claims may be privately inefficient, but a patent holder could join multiple alleged infringers and/or infringements to save costs. However, this joinder tactic has been associated with rent seeking strategies⁴³ so much so that the U.S. Congress modified the joinder rule to stop these types of suits.⁴⁴ This new joinder rule limits how a plaintiff joins alleged patent infringers:⁴⁵ it limits joinder to infringements arising out of the same facts instead of the same patent.⁴⁶ This new joinder has affected rent seeking behaviors but it also has affected patent holders, who would want to enforce low value claims against numerous infringers.⁴⁷

Beside enforcement costs, patent holders' budget constraints may limit enforcement. A holder with budget constraints may not be able to upfront the litigation costs.⁴⁸ If a holder wants to circumvent its budget constraint, then she or he may opt to use a contingency fee agreement. For such agreement to be privately efficient for attorneys, they would need to demand high contingency rates. For example, a low value claim of \$1 million may cost \$700,000 to enforce. It would be privately efficient for the patent holder to enforce this claim because he or she would stand to make \$300,000. However, if the holder cannot upfront the \$700,000, then

⁴² All cost information describes the costs to pursue a case to its conclusion. David A. Divine & Richard W. Goldstein, *Report of Economic Survey 2013*, AM. INTELL. PROP. L. ASS'N (2013).

⁴³ See GAO Study, *supra* note 6 and accompanying text.

⁴⁴ § 1, 125 Stat.

⁴⁵ The AIA limits the joinder rule in order to address non-practicing entity suits. Bryant, *supra* note 5, at 673.

⁴⁶ 35 U.S.C. § 299 (2013).

⁴⁷ The FTC has pointed out this problem during its Section 6(b) investigation. *FTC Study*, *supra* note 34, at 22–23.

⁴⁸ "[P]atent enforcement has become financially undoable for small startup companies. NPEs provide an avenue to protect assets that would otherwise be lost due to financial constraints." Colleen Chien, *Patent Assertion and Startup Innovation*, NEW AMERICA FOUNDATION, SANTA CLARA L. DIG. COMMONS, 3, 18 (2013). In countries like Germany, plaintiff must post a bond to enforce an injunction. See, e.g., *Microsoft Corp. v. Motorola, Inc.*, 696 F.3d 872, 879 (9th Cir. 2012) (discussing injunction bonds in the German system and stating that "[t]he German injunction is not self-enforcing. According to an expert declaration on German law submitted by Motorola to the district court, to enforce the German patent injunction, [the plaintiff] would have to post a security bond covering potential damages to [the defendant] should the infringement ruling be reversed on appeal."). The German injunctive relief requires that plaintiff post a bond. *Id.* This bond is proportionate to the harm the injunction would cause if the defendant could reverse the decision on appeal. *Id.* Thus, if an SME request an injunction against a large producing entity, it may not be able to post the bond. *Id.* Without an injunction, the defendant could decide to stall the negotiations and keep infringing. *Id.* These bonds can be substantial. *Id.* at 880. Injunction bonds aggravate the patent enforcement budget constraint discussed previously. See generally Pierre Véron & Olivier Mandel, *20 Years of Preliminary Injunction in French Patent Infringement Litigation*, VÉRON & ASSOCIÉS (2004). They also affect available enforcement strategies and settlement likelihood. *Id.* Government sponsored PMEs like France Brevets allow patent holder to post the required injunction bonds. *Id.*

the attorney would need a 70% contingency fee to justify taking on the case. With an uncertain outcome, enforcement becomes less likely.⁴⁹

Infringers may take advantage of these failures to willingly free ride. In return, enforcement ease affects the *ex-ante* incentive to innovate.

C. Governmental Efforts to Address Licensing & Enforcement Failures

For the most part, governmental efforts to address these market failures. This section discusses these efforts and their shortcomings.

First, some governments have attempted to address the pre-commercial licensing costs indirectly. Pre-commercial knowledge transfer and license often fail.⁵⁰ Licensing market failure occurs when: (1) practitioners want to license-in technological knowledge; (2) patent holders want to license-out their technology,⁵¹ but (3) practitioners and patent holders cannot match or come to an agreement.⁵²

A well-functioning licensing system benefits society as a whole because it avoids repeating research or costly work-around. In fact, some innovation participants favor licensing.⁵³ Policymakers have attempted to incentivize indirectly these innovation participants.

⁴⁹ A patent holder does not know how a judge or (jury) will decide a case *ex-ante*. Even strong cases can be dismissed for procedural reasons. Weighing its certain litigation costs against the expected benefits may make the suit privately inefficient or mean that attorneys request even higher contingency fee. See *FTC Study*, *supra* note 34, at 48–49.

⁵⁰ These kind of licenses have been referred to as carrot licenses. "Carrot licensing is an active and defensive approach and the original patent owner searches for potential licensees interested in the technology. The potential licensee does not use the patent before the licensing contract is concluded." Frauke R  ther, PATENT AGGREGATING COMPANIES, Springer 32 (2013)(internal quotation omitted).

⁵¹ Some in the past have argued that patents should follow the path of copyright, and compulsory licenses should be created. See e.g. Cole M. Fauver, *Compulsory Patent Licensing in the United States: An Idea Whose Time Has Come*, 8 NW. J. INT'L L. & BUS. 666 (1988). The argument in this section assumes that patent holders wish to license out.

⁵² Various transaction costs hinder these matching, collaboration, and licensing activities. Transaction costs include searching for a partner, contract drafting, etc. Zuniga, *supra* note 28, at 18. Table 13 shows that difficulties in finding partners is the most cited factor of an important obstacle to licensing.

⁵³ Some patent holders prefer licensing-out their technology instead of practicing it. See e.g. Alfonso Gambardella, Paola Giuri, & Alessandra Luzzi, *The market for patents in Europe*, 36 RESEARCH POLICY 1163 (2007)(finding that company size of the patent holders predicts their willingness to license their patent out). Some practitioners have limited competences and resources to devote to research. See e.g., Keld Laursen, Maria Isabella Leone, & Salvatore Torrisi, *Technological Exploration Through Licensing: New Insights From the Licensee's Point of View*, INDUSTRIAL AND CORPORATE CHANGE, Table 1 & 3 (2010) (showing that companies that license-in are, on average, smaller, and finding that size affects how far from existing technology a company is willing to explore).

For example, US policymakers have passed legislation like the Patent and Trademark Law Amendments Act of 1980⁵⁴ to facilitate the licensing and exploitation of underutilized university patents.⁵⁵ It decreases the transaction costs associated with technology licensing for universities. Thus, the act narrowly focuses and indirectly encourages the licensing of university patents.

Other policymakers have attempted to encourage pre-commercialization licensing through indirect financial incentives. For instance, patent boxes⁵⁶ are lower tax rates or tax credits for royalty income.⁵⁷ These boxes provide a marginal benefit to innovators to exploit their patents through licenses (or to sell).⁵⁸ As such, they provide a marginal to sell and license unutilized patents.⁵⁹

⁵⁴ Pub. L. 96–517 (1980). Also known as the Bayh-Dole Act.

⁵⁵ Ashley J. Stevens, *The Enactment of Bayh–Dole*, 29 J. TECH. TRANSFER 93, 95 (2004)(discussing the history of the Bayh-Dole act).

⁵⁶ Patent boxes get their name from the box a taxpayer needs to tick to assert incomes from IP exploitation. Robert D. Atkinson & Scott Andes, *Patent Boxes: Innovation in Tax Policy and Tax Policy for Innovation* (Info. Tech. & Innovation Found., Washington, D.C.), Oct. 2011, at 7–8, available at <http://www.itif.org/files/2011-patent-box-final.pdf> (last visited Feb. 24, 2016).

⁵⁷ Patent boxes, or innovation boxes, can encompass more than royalties. Depending on the jurisdiction, they can encompass all intellectual property related income and may not even require invention patenting. These must not be confused with R&D tax incentives, which come at the R&D stage, whereas patent box tax benefits come at the exploitation stage. *See e.g.* Michael J. Graetz & Rachael Doud, *Technological Innovation, International Competition, and the Challenges of International Income Taxation*, 113 COLUMBIA L. REV. 347, 362–75 (2013).

⁵⁸ The box requirements vary greatly from country to country. Some countries allow for the tax benefits to be claimed by inventors who exploit their own patents (embedded licenses), while other tax regimes limit the tax benefit to pure licensing revenues. *See e.g.* PwC, *Global Research & Development Incentives Group*, (2015) <https://www.pwc.com/gx/en/tax/assets/pwc-global-r-and-d-brochure-may-2015.pdf>; PwC, *Patent Box and Technology Incentives: Tax and Financial Reporting Considerations*, (2015) <https://www.pwc.com/us/en/tax-accounting-services/assets/pwc-patent-box-and-technology-incentives-tax-and-reporting-considerations.pdf>; Qantria Strategies, *Patent Boxes, Technological Innovation and Implications for Corporate Tax Reform*, (2015) Retrieved from American Action Forum: <http://americanactionforum.org/research/patent-boxes-technological-innovation-and-implications-for-corporate> (last visited Feb. 24, 2016).

⁵⁹ The history of patent boxes show that they have been implemented for indirect protectionist reasons. These patent boxes first appeared in Europe. Ireland passed its first patent box in 1973. The year coincided with Ireland assenting into the European Union. To claim the patent box regime, the R&D behind the patent had to be performed in Ireland. The European Commission asserted this same argument when it opposed the Irish patent box. In 2007, the European Commission "requested Ireland to change its tax law provision by which patent royalties are tax exempt only if research leading to the patent was carried out in Ireland" because the Irish nexus approach "is incompatible with the freedom of establishment and the free movement of services." European Commission, *Direct Taxation: Commission Requests Ireland to End Discriminatory Rules on Tax Treatment of Patent Royalties*, (Mar. 23, 2007) Retrieved from European Commission: http://europa.eu/rapid/press-release_IP-07-408_en.htm?locale=en (last visited Feb. 24, 2016). So, the Irish patent box was arguably implemented to incentivize R&D centers not to move to other European Member States. Patent boxes have been heavily criticized as a form of tax competition. Ireland implemented in 1973 and eliminated its patent boxes in 2010. After France in 2000, the patent box proliferation sped up among European Member States. In the next decade, five Member States passed comparable legislation – namely Hungary (2003), Belgium (2007), the Netherlands (2007), Spain (2008), and Luxembourg (2008). Since then, Malta (2010), Cyprus (2012), the UK (2013), and Portugal (2014) also enacted a patent box tax law. *See* Qantria Strategies, *supra* note 58.

The impact on knowledge transfer remains unclear: the countries implementing these boxes have not benefited through tax revenues⁶⁰ and their impact on patenting and patent-licensing/sales has not been measured.⁶¹

Second, some governments have attempted to address the enforcement costs by including attorney's fees recovery as a remedy. In some US jurisdictions and the EU system,⁶² IP holders can already recover attorney's fees in case of success. However, in other legal areas, adding attorney's fees have not corrected the suboptimal enforcement. For example, in employment discrimination cases, recovery of attorney's fees failed to incentivize plaintiffs to optimally enforce their rights.⁶³ Indirect efforts to encourage pre-commercialization licensing and post-commercialization enforcement, have left room for improvement. Some governments have taken more direct actions.

First, some governments are already targeting pre-commercialization market failures. For example, the Korean government created the Korean Integrated Contract Manufacturing Service. This government initiative helps small and medium (SME) enterprises "diffuse their innovative technologies."⁶⁴ This initiative has helped many SMEs defeat (pre-commercialization) matching failures.

⁶⁰ For the implementing countries, the impact on tax revenues has been on average negative. A patent box regime has two effects on its IP income tax revenues: (1) IP income tax revenues decrease because companies already paying IP income taxes in the implementing country are now paying a lower tax rate; (2) IP income tax revenues increase because companies that were not paying IP income taxes in this country may be willing to relocate their IP management to take advantage of the lower rates. Counterfactual studies have attempted to test these effects. They used a discrete choice model to determine how each company decides where to locate their IP management. They found that companies respond to IP tax regime changes and they relocate where their IP was held. Rachel Griffith, Helen Miller, & Martin O'Connell, *Ownership of Intellectual Property and Corporate Taxation*, 111 J. PUBLIC ECON. 12 (2014). Another study found similar impact on patenting location. See also, Annette Alstadsæter, Salvador Barrios, Gaetan Nicodeme, Agnieszka Maria Skonieczna, & Antonio Vezzani, *Patent Boxes Design, Patents, Location and Local R&D*, European Commission (2015) https://ec.europa.eu/jrc/sites/default/files/JRC96080_Patent_boxes.pdf (last visited Feb. 24, 2016).

⁶¹ The Griffith et al. study and the Alstadsæter et al. study both assume that the patenting behavior is unaffected by these patent boxes. *Id.* They instead test where patenting occurs assuming that patent will occur in one of the jurisdictions of choice. A counterfactual addressing the overall impact on patenting has not been performed.

⁶² See e.g., Garry A. Gabison, *Lessons that Europe can Learn From the US Patent Assertion Entity Phenomenon*, 24 INFO. & COMM. TECH. L. 278, 289–92 (2015).

⁶³ Gabison, *supra* note 18.

⁶⁴ Sungjoo Lee, Gwangman Park, Byungun Yoon, & Jinwoo Park, *Open Innovation in SMEs – An Intermediated Network Model*, 39 RESEARCH POLICY 290, 296–99 (2010).

The Korean government also founded a PME, Intellectual Discovery, in 2010.⁶⁵ In 2012, it acquired a portfolio of 244 patents from Avago Technology, a Singapore based chipmaker.⁶⁶ Later that year, Intellectual Discovery sold to Google a patent entitled "Personal viewing device with system for providing identification information to a connected system."⁶⁷ This patent was later incorporated into the Google Glasses commercialized in 2013.⁶⁸ This transfer exemplifies successful pre-commercialization transfers where government sponsored PMEs played an active role. In this case, Intellectual Discovery just flipped the patents more than they acted as a broker between Avago and Google; nonetheless, they made the deal possible. Other public centralized entities can play that role.

These centralized entities are common in copyright in both the US private and public sector. For example, in the U.S. sound recording industry, three private entities act as centralized bargaining agent and offer blanket licenses.⁶⁹ They collect the fees on behalf of songwriters, composers, and music publishers. They later distribute these fees in the form of royalties to their members according to performance frequency.⁷⁰ In the public sector, the U.S. policymakers have assigned the U.S. Copyright Office to act as the central entity. U.S. policymakers have created statutory compulsory licenses.⁷¹ These compulsory licenses⁷²

⁶⁵ *Company>History*, INTELLECTUAL DISCOVERY, <http://www.intellectualdiscovery.com/site/kr/overview/history.jsp> (last visited Jan. 2019).

⁶⁶ Dan Levine and Miyoung Kim, *Insight: Nation-states Enter Contentious Patent-buying Business*, Reuters (Mar. 20, 2013) <http://in.reuters.com/article/us-patents-nations-insight-idUSBRE92J07B20130320> (last visited July 29, 2016).

⁶⁷ US Patent 6,735,328 filed on March 7, 2000 and granted on May 11, 2004. The patent filing shows that the original assignee was Agilent Technologies, Inc. (Palo Alto, CA). Avago Technologies was bought in 2000 and then divested by Agilent Technologies in 2006. Jeffrey McCracken, Alex Sherman & Ian King, *Avago to Buy Broadcom for \$37 Billion in Biggest Tech Deal Ever*, BLOOMBERG (May 27, 2015). <http://www.bloomberg.com/news/articles/2015-05-27/avago-said-near-deal-to-buy-wireless-chipmaker-broadcom> (last visited July 29, 2016). Through the sale, Avago Technologies kept some of the patents, which were later sold to Intellectual Discovery. The USPTO record shows that US Patent 6,735,328 has been transferred to Google, Inc. on November 16, 2012.

⁶⁸ Bill Slawski, *Google Acquires Patent For Eye Scan Security And Augmented Imagery*, SEO BY THE SEA (Jan. 12, 2013), <http://www.seobythesea.com/2013/01/eye-scan-security-augmented-imagery/>.

⁶⁹ These three entities are Broadcast Music Incorporated, American Society of Composers, Authors and Publishers, and SESAC, which stands for Society of European Stage Authors and Composers.

⁷⁰ *Broadcast Music, Inc. v. Columbia Broadcasting System, Inc.*, 441 US 1 (1979) (discussing the sound recording industry business model).

⁷¹ 17 U.S. Code § 115.

⁷² Compulsory license seekers must file a notice with the Copyright Office. The Copyright Office then collects compulsory license royalties for copyright holders. Later, it later redistributes these fees to right holders. See e.g. *Nat'l Ass'n of Broadcasters v. Librarian of Congress*, 146 F.3d 907, 912–13 (D.D.C. 1998) (discussing the functioning of compulsory licensing collection and distribution).

avoid the matching⁷³ issue and holdup problem associated with licensing negotiations.⁷⁴

This system has been criticized as inefficient. First, compulsory licensing rates create market ceiling.⁷⁵ This ceiling incentivizes individuals seeking compulsory licenses to negotiate longer:⁷⁶ the statutory licensing fee acts as a holdout mechanism. Second, the compulsory licensing system can be slow and resource intensive.⁷⁷

In copyright context, these private right aggregators provide an example of a well-functioning system that enable licensing. In spite of the criticisms, the government agency serves as complement to their efforts. Comparable centralized entities are rarer in the patent context. For example, patent pools aggregate patents and license the pooled portfolio to willing practitioners. These patents are usually technology-related or complementary.⁷⁸ This idiosyncrasy limits their proliferation to complementary technologies.⁷⁹

Second, some governments has also taken direct actions with respect to post-commercialization infringement. For example, the French government created a PME, France Brevets, in 2010.⁸⁰ France Brevets

⁷³ This system addresses matching failure. When the copyright holder cannot be ascertained (i.e. orphan works), the Copyright Office collects the fees on behalf of the unknown rightful owner. See e.g. Robert Kirk Walker, *Negotiating the Unknown: a Compulsory Licensing Solution to the Orphan Works Problem*, 35 CARDOZO L. REV. 35 (2014) (discussing the benefits of having compulsory licenses for orphan works).

⁷⁴ Because copyrighted works are not homogenous, some parties have larger bargaining powers. The asymmetric bargaining power can lead to socially efficient deals to fail.

⁷⁵ See e.g. Howard B. Abrams, *Copyright's First Compulsory License*, 26 SANTA CLARA HIGH TECH. L.J. 215 (2009).

⁷⁶ See e.g. Karen Hsieh, *Unlock the Music: Replacing Compulsory Music Licenses with Free Market Negotiation*, 17 CARDOZO J. CONFLICT RESOL. 595 (2015).

⁷⁷ See U.S. Copyright Office, *Copyright and the Music Marketplace: A Report of the Register of Copyrights*, 107 (Feb. 2015) <http://copyright.gov/docs/musiclicensingstudy/copyright-and-the-music-marketplace.pdf> (discussing the concerns expressed by respondent to a public consultation).

⁷⁸ Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting*, 1 INNOVATION POLICY & ECON., 119, 127–28 (2001).

⁷⁹ Anne Layne-Farrar & Josh Lerner, *To Join or Not to Join: Examining Patent Pool Participation and Rent Sharing Rules*, 29 INTERNATIONAL J. INDUSTRIAL ORGANIZATION 294 (2011)(discussing some of the dynamics behind patent holders' willingness to participate in a patent pool). These pools benefit practitioners as well as patent holders. Paul J. Heald, *A Transaction Costs Theory of Patent Law*, 66 OHIO ST. L. J. 473, 495 (2005).

⁸⁰ In 2010, the French government created its PME, France Brevets. "Constituée en mars 2010 sous la forme d'une société par actions simplifiée, France Brevets est dotée d'un capital de 100 M€ à terme, à parité entre la Caisse des dépôts agissant pour le compte de l'Etat dans le cadre du Programme d'Investissements d'Avenir et la Caisse des Dépôts intervenant pour son compte propre" which translates to: Established in March 2010 as a joint stock company, France Brevets has a capital of €100 million which were invested in equal shares by *la Caisse des dépôts* on behalf of the State as

sued HTC in the U.S.⁸¹ The government sponsored PME directly enforced the rights of its clients.

In other context (e.g., employment or housing discrimination), U.S. policymakers have directly intervened when rights were under-enforced.⁸² Policymakers filled the enforcement gap by creating a public enforcement agency. The same could be done with patent enforcement in the US. The next section discusses in more detail the actions of government-backed PMEs.

II. GOVERNMENT SPONSORED PMES

This section discusses three government sponsored PMEs: South Korea's Intellectual Discovery; Japan's IP Bridge; and France's France Brevets.

A. *Intellectual Discovery*

Intellectual Discovery was created in 2010 "to evaluate and invests in IP owned by entities and to provide the entities with direct or indirect benefits."⁸³ Intellectual Discovery has been involved in the most transactions of the three.⁸⁴ Searching its US patent portfolio shows that Intellectual Discovery registered three hundred and twenty-three unique transactions as the assignee of patent transactions and 16 as the assignor of patents.⁸⁵

The three hundred and twenty-three patent transactions are divided into three types of transaction: exclusive licenses, licensing agreements, and patent assignments. Intellectual Discovery registered two hundred and twenty-two exclusive licensing agreements, ninety-two licensing agreements, and one thousand one hundred and ninety-one patent assignments. Table 3 shows the distribution of agreements where

part of the Program on Investments for the Future and *la Caisse des dépôts* acting for its own account. (author's translation) <http://www.caissedesdepots.fr/france-brevets-0> (last visited Jul. 23 2016).

⁸¹ *NFC Technology, LLC v. HTC America, et al.*, 2:13-CV-01058-JRG (ED Tex. 2013). "NFC Technology, LLC ("NFCT"), a Delaware limited liability corporation with its principal place of business in Marshall, Texas. NFCT is a wholly-owned indirect subsidiary of France Brevets" *NXP Semiconductors USA, Inc. v. France Brevets, SAS*, No. C 14-1225 SI (ND Cal. 2014).

⁸² Gabison, *supra* note 18.

⁸³ <http://www.i-discovery.com/site/en/overview/aboutid.jsp> (last visited Sep. 20, 2018). See also, Nguyen, *supra* note 13, at 1266-67 for more details.

⁸⁴ Jack Ellis, *Intellectual Discovery May be the Biggest of the Sovereign Patent Funds, but its Activities are the Least Known*, INTELL. ASSET MNGT. (May 27, 2016), <http://www.iam-media.com/blog/detail.aspx?g=c13bfd7c-9f0b-4496-80c7-913518233bd1> (last visited Aug. 2, 2016).

⁸⁵ All pertinent information was extracted from <http://assignment.uspto.gov/> on July 31, 2016.

Intellectual Discovery was the assignee.⁸⁶ The country is based on the origin of the assignor.

Table 3: Patent transactions with Intellectual Discovery as patent assignee

Country of assignor (major contributor)	Exclusive licensing agreement		Licensing agreement		Patent assignment	
South Korea (SK Hynix Inc.)	211 (0)	95% (0%)	92 (0)	100% (0%)	810 (104)	68% (9%)
(Samsung)	(0)	(0%)	(0)	(0%)	(99)	(8%)
(Elec. & Telecom. Research Inst.)	(166)	(75%)	(79)	(86%)	(86)	(7%)
United States (IBM)	11 (0)	5% (0%)	0 (0)	0% (0%)	217 (143)	18% (12%)
All Other (Avago, Singapore)	0 (0)	0% (0%)	0 (0)	0% (0%)	164 (135)	14% (11%)
Total	222	100%	92	100%	1191	100%

As of July 31, 2016

source: USPTO

This data shows that Intellectual Discovery favored assignments over licensing agreements: 79% of transactions are assignments, 15% are exclusive licenses, and 6% are licenses. So, Intellectual Discovery acts more like a PAE in the United States (acquiring patents) than a PME (licensing patents).

Intellectual Discovery agreed with entities from South Korea, the United States, Singapore, Canada, and Japan. Its network could explain the predominance of agreements with South Korean patent holders. Since it is a Korean based entity, it has a comparative advantage in contacting Korea-based patent holders.

The origin of the patent provides an interesting look into its business model. First, most contributions come either from large research institutes or individuals associated with universities and research centers. Intellectual Discovery registered three hundred and thirty-one patents transferred from Electronics & Telecommunications Research Institute:

⁸⁶ Note that patent assignments can be registered under 35 U.S. Code § 261. Any failure to register transaction does not terminate or forfeit the transaction. Instead, it protects against subsequent claims acting like a race statute. Therefore, every assignment to and by Intellectual Discovery may not be recorded. In general, PAEs seem to register their patents. The FTC study found that about 95.5% of acquired patents are recorded with the USPTO and about 66.9% are recorded within 90 days of acquisition date. *FTC Study, supra* note 34, 144–46. Therefore, looking at the USPTO records can provide valuable information about PAE activities.

eighty-six were assignments, one hundred and sixty-six were exclusive licenses, and seventy-nine were licenses.⁸⁷ Gwangju Institute of Science and Technology assigned twenty-four patents to Intellectual Discovery.⁸⁸ Over eighty patents were assigned from different research centers and industry-academy cooperation groups. Beside these large assignments, about 15% of patents came from individual inventors with ties to research centers and universities.

Universities and research centers play an important role in their business model. About a third of the patents assigned to Intellectual Discovery come from universities and research institutes. About 87% of the exclusive licenses come from research institutes, which include eleven patents licensed by Arizona State University. All the license agreements come from South Korean universities and research institutes.

Second, contributions from the private sector usually come from large practicing companies. From South Korea, Intellectual Discovery was assigned one hundred and four patents from SK Hynix⁸⁹ and ninety-nine patents from Samsung.⁹⁰ In the US, it was assigned one hundred and forty-three patents from IBM.⁹¹ From Singapore, it was assigned one hundred and thirty-five patents from Avago.⁹² These assigning companies may not exploit the patents because they fall outside their practicing areas. Instead, they decided to monetize them through Intellectual Discovery.

As an assignor, Intellectual Discovery only conducted assignments of rights. It conducted 16 transactions involving fifty-four patents: six transactions involved Korean companies and twenty-six patents; four transactions involved US companies and twenty-two patents; and six involved Hong Kong companies and six patents (

Table 4).⁹³

⁸⁷ Reel Frames 30418-587, 32242-407, 29589-357, 32456-991, 29343-203, 31171-898, 30831-249, 31615-770, 30695-272, 34594-283, 34594-229, 34594-461, 34077-862, 34594-15, 34594-115, 29343-196 completed in 2012, 2013, and 2014.

⁸⁸ Reel Frames 26198-918, 35218-758, 37285-602, 33630-12, 37285-618, 35357-835, 38316-94, 39193-105 completed from 2011 to 2016.

⁸⁹ Reel Frames 32421-488 and 30471-480 completed in 2013 and 2014.

⁹⁰ Reel Frames 34151-504, 29776-256, 29776-78, 29776-178, 29775-973, 29761-694, and 29776-463 completed in 2013 and 2014.

⁹¹ Reel Frames 30596-562, 30624-719, 32007-568, 30628-554, and 34849-203 completed in 2013 and 2014.

⁹² Reel Frames 28972-733, 28968-296, and 28995-175 completed in 2012.

⁹³ All the HK transactions were with Golden Valley Holdings. Reel Frames 38738-707, 38739-42, 38738-769, 38738-553, 38739-180, and 38738-881 completed in 2016.

Table 4: Patent assignments with Intellectual Discovery as patent assignor

Country of assignee (major contributor)		
South Korea	26	48%
(Hyundai Motor Comp.)	(18)	(33%)
(Neolab Convergence Inc.)	(6)	(11%)
United States	22	41%
(XCSR, LLC)	(9)	(17%)
(Game and Tech. Co.)	(8)	(15%)
(CTSI Co.)	(4)	(7%)
Hong Kong	6	11%
(Golden Valley Holdings)	(6)	(11%)
Total	54	100%

As of July 31, 2016
source: USPTO

These transactions show that Intellectual Discovery does not license (or at least has not registered its licensing agreements). Thus, it confirms that it behaves more like a PAE than a licensing PME as an assignor as well.

These transactions also illustrate that Intellectual Discovery acquires and assigns patents to non-Korea entities. Some questions were raised about some of its transactions.⁹⁴ Since 2016, Intellectual Discovery

⁹⁴ Jack Ellis, *Patents linked to South Korea's Intellectual Discovery asserted in Eastern Texas litigation*, INTELL. ASSET MGMT. (Oct. 26, 2015) (discussing the suits filed by Game and Technology against Blizzard Entertainment, Riot Games, Valve and Wargamingnet involving patents that were assigned to Game and Technology by Intellectual Discovery) <http://www.iam-media.com/blog/detail.aspx?g=e5c2b3e8-3c40-4d9d-836d-6becd30ff516> (last visited Aug. 2, 2016).

has divested part of its portfolio.⁹⁵ This came after the former CEO complained about budget cuts.⁹⁶

B. IP Bridge

IP Bridge is a Japanese government sponsored PME founded in 2013.⁹⁷ It hopes to prevent free riding.⁹⁸ It received funds from public and private entities.⁹⁹ It aims to serve SMEs and startups, universities and research centers, as well as large companies.¹⁰⁰

IP Bridge has a comparable portfolio to Intellectual Discovery. Its behavior, nonetheless, seems more focused on Japanese held patents. In the US, IP Bridge was involved in thirty-six unique transactions as an assignee with entities from Japan and one entity from the United States (Table 5).¹⁰¹ These thirty-six transactions involved one thousand two hundred and twenty six patents, of which nine hundred and fifty were assigned by Panasonic,¹⁰² one hundred by NEC,¹⁰³ and eighty-eight by Sanyo.¹⁰⁴ Contrary to Intellectual Discovery, IP Bridge has not registered any licensing agreements.

Table 5: Patent transactions with IP Bridge

Country of assignor & assignee (major contributor)	IP Bridge Assignee		IP Bridge Assignor	
Japan	1184	97%	38	100%
(Panasonic)	(950)	(77%)	(21)	(55%)
(NEC)	(100)	(8%)	(0)	(0%)
(Sanyo Elec.)	(88)	(7%)	(17)	(45%)

⁹⁵ Jacob Schindler, *Intellectual Discovery offloads another portfolio and narrows business focus in new CEO's first year*, INTELL. ASSET MGMT. (Dec. 18, 2017). <https://www.iam-media.com/litigation/intellectual-discovery-offloads-another-portfolio-and-narrows-business-focus-new> (last visited Sep. 20, 2018).

⁹⁶ Jacob Schindler, *More upheaval in the SPF sector as Intellectual Discovery CEO resigns*, INTELL. ASSET MGMT. (Oct. 27, 2016). <https://www.iam-media.com/litigation/more-upheaval-spf-sector-intellectual-discovery-ceo-resigns> (last visited Sep. 20, 2018).

⁹⁷ Nguyen, *supra* note 13, at 1263–66 for more details.

⁹⁸ *Id.*

⁹⁹ Bruce Einhorn, *Asia Is Getting Its Own Patent Police*, BLOOMBERG (July 8, 2016) <http://www.bloomberg.com/news/articles/2016-07-08/xiaomi-huawei-and-others-seek-tech-patent-infringement-fees>; <http://ipbridge.co.jp/en/about> (last visited July 29, 2016).

¹⁰⁰ IP BRIDGE, <http://ipbridge.co.jp/eng/> (last visited Oct. 22, 2016).

¹⁰¹ IP Bridge was assigned 42 patents from Visteon Global Technologies in in 2015 (Reel Frame 35421-739).

¹⁰² Reel Frames 35968-223, 35510-59, 35509-804, 35003-660, 33161-573, 32268-568, 32205-550, 32204-693, 32197-273, 32054-628, 32028-105, 32094-311, 31954-554, 31953-882, 31953-393, 31950-683, 31903-183, 32152-514, 32209-63, 36054-104, 36036-705, 35695-16, 35510-335, and 35003-750 completed between 2013 and 2015.

¹⁰³ Reel Frame 34834-806 completed in 2014.

¹⁰⁴ Reel Frames 32077-337, 32153-515, 31736-80, 31736-69, 31771-485, and 31771-436.

United States	42	3%	0	0%
(Visteon Global Tech. Inc.)	(42)	(3%)	(0)	(0%)
Total	1226	100%	38	100%

As of July 31, 2016

source: USPTO

IP Bridge was involved in two unique transactions as an assignor with entities from Japan (i.e. Panasonic and Sanyo). These assignments involved thirty-eight patents.

IP Bridge was more open about its litigation strategy.¹⁰⁵ It brought suits in the US against TCL Corporation, a Chinese electronic manufacturer,¹⁰⁶ Broadcom Limited,¹⁰⁷ Intel,¹⁰⁸ two American semiconductor manufacturers, and Omnivision Technologies, an American electronic developer.¹⁰⁹ IP Bridge continues to litigate its patents. It recorded some successes.¹¹⁰

C. France Brevets

France Brevets has the smallest portfolio of these three entities. France Brevets aimed “to build strategic patent positions and monetize them through effective and focused licensing efforts”¹¹¹ and to help SMEs who seek to license their innovation.¹¹²

¹⁰⁵ Bing Zhao, *Five years after its founding, IP Bridge reflects Japan's changing approach to patents*, INTELL. ASSET MNGT. (quoting the vice president stating that “Our licensing policy is to negotiate in good faith and offer a reasonable royalty. [. . .] some possible licensees refuse to take a licence. [. . .] In such cases, we have no choice but to ask courts to decide on whether we are right or not.”) <https://www.iam-media.com/finance/five-years-after-its-founding-ip-bridge-reflects-japans-changing-approach-patents> (last visited Sep. 20, 2018).

¹⁰⁶ *Godo Kaisha IP Bridge 1 v. TCL Communication Technology Holdings Limited et al*, 1:15-cv-00634 (D. Del. 2015).

¹⁰⁷ *Godo Kaisha IP Bridge 1 v. Broadcom Limited et al*, 2:16-cv-00134 (ED. Tex. 2016).

¹⁰⁸ *Godo Kaisha IP Bridge 1 v. Intel Corporation*, 2:17-cv-00676 (ED. Tex. 2017).

¹⁰⁹ *Godo Kaisha IP Bridge 1 v. OmniVision Technologies, Inc.*, 1:16-cv-00290 (D. Del. 2016).

¹¹⁰ Ambrogio Visconti, *Intel Corporation v. Godo Kaisha IP Bridge*, THE GLOBAL CHRONICLE (Sep. 19, 2018) <http://www.globallegalchronicle.com/intel-corporation-v-godo-kaisha-ip-bridge/> (last visited Sep 20, 2018).

¹¹¹ FRANCE BREVETS, <http://www.francebrevets.com/en> (last visited Jul. 23, 2016).

¹¹² Convention du 2 septembre 2010 entre l'Etat, l'Agence nationale de la recherche et la Caisse des dépôts et consignations relative au programme d'investissements d'avenir (action «France Brevets»), JORF n°0205 page 16153 (Sept., 4 2010) <http://www.legifrance.gouv.fr/eli/convention/2010/9/2/PRMX1022556X/jo/texte> (last visited Jul. 23, 2016). France Brevets, according to its expressed goals, aims at helping small and medium size companies to raise revenues from intellectual property and at providing them with the means to secure licenses. As such, France Brevets asserts that it champions the interests of the small and give the example of one company: “Laurent Tonnelier’s testimonial, CEO of mobiLead, a French start-up

Until July 2016, it was involved in fewer transactions. In the US, France Brevets was involved in twenty-one unique transactions as an assignee with entities from France, Italy, Switzerland, Spain, German, Finland, Korea, and United States. These twenty-one transactions involved one hundred and eighty-seven patents. France Brevets registered one licensing agreement involving one patent. The other twenty transactions are assignments.¹¹³

Table 6: Patent transactions with France Brevets

Country of assignor/assignee (major contributor)	France Brevets Patent Assignee		France Brevets Patent Assignor	
Europe	176	95%	0	0%
(STMicroelectronics Int.'l NV, Netherlands) ¹¹⁴	(95)	(51%)	(0)	(0%)
(Thomson Licensing, France)	(40)	(22%)	(0)	(0%)
(CDC Propriete Intellectuelle, France)	(17)	(9%)	(0)	(0%)
(Intuilab)	(0)	(0)	(0)	(0%)
United States	5	3%	5	100%
(EMS Technologies)	(5)	(3%)	(0)	(0%)
(Clean Energy Management Solution LLC)	(0)	(0%)	(5)	(100%)
South Korea	4	2%	0	0%
LG Electronics	(4)	(2%)	(0)	(0%)
Total	185*	100%	5**	100%

As of July 31, 2016

* Not included: France Brevets registered that it was assigned one license and one partial patent assignment

** Not included: France Brevets registered that it assigned a security interest in a patent

source: USPTO

France Brevets was involved in two transactions as an assignor with an entity from the United States and France.¹¹⁵ These assignments involved six patents: five patent assignments and one security interest.

creating outstanding innovations in the Internet of Things field. Its founder, and inventor of the new generation of QR Code, is recognizing France Brevets for its professional technical expertise and long term vision.” (last visited Jul. 23, 2016).

¹¹³ One assignment was a partial assignment (Reel Frame 32736-586).

¹¹⁴ STMicroelectronics is a multinational incorporated in the Netherlands, with headquarters in Switzerland, and set-up and owned in part by the French and Italian government.

¹¹⁵ One assignment was a security interest (Reel Frame 34662-393).

France Brevets sued HTC in the US through a subsidiary, NFC Technology, LLC.¹¹⁶ The use of this subsidiary creates an added layer of opacity—even if France Brevets attempts to disclose other valuable information during the suit.¹¹⁷ France Brevets sued HTC in Germany under its own name.¹¹⁸ France Brevets collected patents under its own name. Since its inception, France Brevets seems to focus on post-commercialization licensing instead of pre-commercialization licensing. Contrary to Intellectual Ventures, IP Bridge and France Brevets mostly received patent assignments from companies or inventors from their home territory.¹¹⁹ Ninety-seven and ninety-five percent of patents assigned come respectively from Japan and Europe.¹²⁰ IP Bridge has only assigned patents to Japanese companies. France Brevets have only assigned patents to US companies.¹²¹

In 2018, France Brevets has collaborated with Qualcomm and IP Europe to help SMEs build a portfolio from filing to enforcing.¹²² France Brevets is attempting to live up to its mission statement of helping SMEs. France Brevets favors a licensing scheme where they receive a share of the royalties instead of purchasing patents to assert.¹²³

III. IS IT TIME FOR A US SPONSORED PME?

Since their inception, government-sponsored PMEs have raised concerns. Their detractors present two main arguments: (1) these entities fail to reach their stated goals and (2) these entities present a threat to international trade. This section discusses these two arguments in more detail after discussing why the USPTO could join the market.

¹¹⁶ See *supra* note 81.

¹¹⁷ Nguyen, *supra* note 13, at 1274–75 (discussing France Brevets' business methods).

¹¹⁸ France Brevets *.l.* HTC (LG Düsseldorf, 4b O 140/13, March 26th, 2015).

¹¹⁹ Because of European Union rules, France Brevets cannot (openly) discriminate between European Member States and did not seem to have. As such, this conversation uses home territory to describe Europe for France Brevets.

¹²⁰ In the case of France Brevets, the relevant territory seems to be Europe. France Brevets received a large share of patents from French entities. But it is difficult to classify companies like STMicroelectronics.

¹²¹ See France Brevets, *supra* note 118.

¹²² Joff Wild, *Qualcomm, France Brevets and IP Europe join forces to create a new funding initiative for European SMEs*, INTELL. ASSET MNGT. (Jun 22, 2018), <https://www.iam-media.com/finance/qualcomm-france-brevets-and-ip-europe-join-forces-create-new-funding-initiative>.

¹²³ Nguyen, *supra* note 13, at 1280–81.

A. *New Role for the USPTO*

Governmental efforts to create efficient patent markets have yielded ambiguous results. The US government should do more. After all, the Constitution specifies that Congress has the power “[t]o promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.”¹²⁴

This inclusion signals that the founding fathers perceived the IP system as an important tool to incentivize science and the useful arts. In many ways, the current IP system fails to reach this goal. Under the current system, the US government grants exclusive rights but does not secure those rights for authors and inventors. Without such security, these authors and inventors are not incentivized to promote science and useful arts.

The US government should consider tasking the USPTO with creating its own PME. First, the USPTO has a comparative advantage as a pre-commercial agent for patent holders. The USPTO has a monopoly in patent granting. During patent prosecution, patent examiners investigate prior-art.¹²⁵ As such, the investigating examiner should be familiar with related applications. During prosecution, the examiner could flag potential matches. Similarly, the USPTO could evaluate patent value. Economies of scope could be created by joining granting services with valuation services.¹²⁶

Such a centralized agency decreases transaction costs. First, the USPTO would decrease searching costs between willing licensees and licensors because collaborators can meet in a single venue. Second, the USPTO could decrease negotiation costs because of their economies of scale and learning by doing.¹²⁷ The USPTO could help even out the

¹²⁴ U.S. CONST, art. I, § 8, cl. 8.

¹²⁵ Under 35 U.S.C. §§ 102–103.

¹²⁶ A similar argument has been made with regard to essentiality: patent offices could perform essentiality tests and generate economies of scope. Currently, essentiality tests are only performed in the case of patent pool. Standard developing organizations have benefited from cooperating with patent offices to assess essentiality of patents and to avoid patent ambush. *See, e.g.,* Rudi Bekkers and Andrew Updegrave, *A study of IPR policies and practices of a representative group of Standards Setting Organizations worldwide*, US National Academies of Science, Board of Science, Technology, and Economic Policy, 66 (2012) http://sites.nationalacademies.org/cs/groups/pgasite/documents/webpage/pga_072197.pdf (last visited Jul. 23, 2016) (discussing the cooperation efforts between European Telecommunications Standards Institute and the European Patent Office to create a database of declared standard essential patents).

¹²⁷ A government-sponsored PME can provide important pricing expertise. Licensing fees can be complicated to set. Even *post-commercialization*, courts struggle to set the royalty base and rate. *Pre-commercialization* patent holders and practitioners can underestimate the value of the patented feature. Sophisticated contracts can, nonetheless, account for future product success. Federal courts have advanced different theories to set royalty base and rate. For royalty base, the two primary theories are “entire market value rule” and “smallest salable patent practicing unit.” If a patented aspect

bargaining power between small innovators and large implementers because they could suggest standard royalty/licensing terms and sell terms.¹²⁸ Third, the USPTO could also leverage its mandate to suggest cross-technology enhancement to willing licensors. These economies of scope would not exist in comparable private entities like patent pools.

The USPTO mandate could also be more limited to helping small innovators who lack the licensing network or focusing on pre-commercialization. The USPTO already offers small fees for small and micro entities because it recognizes the budget constraint and difficulties these entities face.¹²⁹

Regardless, the USPTO as a PME could encourage best practices.¹³⁰ Competition often encourage companies to cut corners (e.g., shame litigations). The USPTO could be isolated from market pressures because its patent granting services ensure that it remains self-sustainable. Beside pre-commercialization licensing, the USPTO could help with pre-commercial sales. Patent holders often struggle to set appropriate prices

of a product cannot be distinguished from the product and its desirability, then the court usually uses the entire market value rule of the final product as the royalty base. If it is distinguishable, the court will go down to a production product until it cannot be distinguished. This sub-product would become the smallest salable patent practicing unit. *See, e.g., Zelin Yang, Damaging Royalties: An Overview of Reasonable Royalty Damages*. 29 BERKELEY TECH. L. J. 647 (2014); J. Gregory Sidak, *The proper royalty base for patent damages*, J. COMP. L. & ECON. (2014) doi: 10.1093/joclec/nhu030. For royalty rate, courts usually investigate a set of factors enumerated in *Georgia-Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116 (SDNY 1970).

¹²⁸ This section does not argue that the USPTO should follow the Copyright example with compulsory licenses. Instead, the patent holders could opt into this system and could set the royalty they want as a measure of the final product value. Post-commercialization market failures affect pre-commercialization market failures. Small innovators usually have little bargaining power as compare to large implementers. After all, a potential licensor could decide that it does not need a license after all and instead infringe and wait for suit. Since small innovators experience budget constraints, their hollow threat of litigation offers little bargaining power and leverage to get a (stick) license. To work efficiently, a patent system requires that all social beneficial innovations are incentivized regardless of the innovators post-patenting bargaining power.

¹²⁹ 35 U.S.C. § 41(h).

¹³⁰ For example, the Federal Trade Commission (FTC) has encouraged such best practices. The FTC investigated MPHJ Technology Investments, LLC, an alleged PAE. *In re MPHJ Tech. Inv. LLC*, F.T.C. Matter No. 142-3003 (F.T.C. Nov. 6, 2014). After filing a suit, the FTC reached a settlement with MPHJ. MPHJ Technology Investments, LLC, Jay Mac Rust, and Farney Daniels, P.C.; Analysis to Aid Public Comment, 79 Fed. Reg. 67,435, 67,436 (proposed Nov. 13, 2014). The FTC authority rested its case on its consumer protection mandate. Section 5(a) of the Federal Trade Commission Act codified as 15 U.S. Code § 45 (a). The FTC alleged that MPHJ employed deceptive practices. These practices include the deceptive demand letters that MPHJ sent to alleged infringers. *In re MPHJ Tech. Inv. LLC*, F.T.C. Matter No. 142-3003 (F.T.C. Nov. 6, 2014). The FTC has found that demand letters have not been the main issue and that demand letter reform would not be sufficient to affect the nuisance suits. *See FTC Study, supra* note 34. at 100–01. Nonetheless, multiple legislations have been tabled to set the minimum that needed to be included within these demand letters. *Id.* at 31–32.

for their patents.¹³¹ Patent purchasers struggle to estimate patent values because they may not understand the technology and its applications.¹³² Thus, even if licensors and licensees find each other, their valuation may not match. As a repeat player, the USPTO can help set a satisfying price for both parties during bilateral negotiation.¹³³ Albeit not currently specialized in pricing, the USPTO can leverage its expertise in patent granting to enhance its patent valuation ability. After all, the USPTO is full of patent experts.¹³⁴ Alternatively, the USPTO could serve as a centralized auction house where willing sellers and purchasers could meet. Willing sellers could auction their patents to ensure that knowledge is actually transferred.

Second, the USPTO also has a comparative advantage in enforcing patents. The USPTO has more resources than most patent enforcers do. It would not suffer from budget constraints afflicting small patent holders. The USPTO has patent experts on hand. It could evaluate infringement claims and make recommendations at a lower cost than attorneys make. The USPTO can complement enforcement with public policy; it can change rules and adapt when it sees inefficient issues with enforcement and patenting approval methods.

The USPTO has an interest in a well-functioning enforcement system. Its mandate should be amended to reflect this interest. Without an enforcement mechanism, patents and the USPTO become irrelevant. For example, the USPTO could use its prosecutorial discretion to discourage fraudulent or nuisance suits.¹³⁵

¹³¹ Some have argued that patent holders are likely to overvalue their patents. See e.g. Scott Iyama, *The USPTO's proposal of a biological research tool patent pool doesn't hold water*, 57 STANFORD L. REV. 1223, 1233 (2005) (discussing the cognitive bias that lead to patent holder overvaluing their patent ex-ante).

¹³² See, e.g., Robert Pitkethly, *The valuation of patents: a review of patent valuation methods with consideration of option based methods and the potential for further research*, The Judge Institute of Management Studies WP 21/97 (1997) (discussing patent valuation methods) http://www.cambiotec.org.mx/cyted/documentos/avaluo/doc_rpit_kethlyl.pdf (last visited Jul. 23, 2016).

¹³³ Patent examiners investigate prior art. They are involved in re-examination proceedings. They gain valuable experience and expertise understanding novelty and citation system, which are driving elements of patent valuation. See, e.g., Allen W. Wang, *Rise of the patent intermediaries*, 25 BERKELEY TECH. L. J. 159, 183–190 (2010) (discussing the value of experts in assisting in the valuation process).

¹³⁴ Dietmar Harhoff, Frederic M. Scherer, & Katrin Vopel, *Citations, family size, opposition and the value of patent rights*, 32 RESEARCH POLICY 1343 (2003) (empirically estimating the factors affecting patent valuation).

¹³⁵ Nuisance suits are suits brought by patent holders who know that the defendant does not infringe but the plaintiff hopes to leverage litigation costs to reach quick settlements. See e.g., Fiona Scott Morton & Carl Shapiro, *Patent Assertions: Are We Any Closer to Aligning Reward to Contribution?*, 16 INNOVATION POLICY AND THE ECONOMY 89, 93 (2015). These suits decrease social welfare and the incentive to commercialize socially value products. Nefarious PAEs are associated with these activities. See Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117 (2013) (discussing the different PAE business model and finding that one type of business model PAE frequently engages in nuisance suits). If the patent system is to work,

Even if the USPTO could not serve as an enforcer, it could at least help—particularly smaller entities. For example, it could provide the venue for an administrative court. It has neutral experts on hand that already prosecuted the claim being litigated. If an administrative court were to use a neutral expert provided by the USPTO, it could avoid lengthy and onerous Markman hearings. At the least, the USPTO could create a small claims court and use its experts in that venue.¹³⁶

Finally, the USPTO should complement the efforts of private PMEs.¹³⁷ The public and private entities should act as complementary brokers,¹³⁸ and enforcers,¹³⁹ to encourage a socially optimal IP system.

litigation or the threat of litigation must also exist. Therefore, stick licenses must also exist. The general manager of France Brevets explains that they prefer to negotiate first and sue only if the alleged infringer refuses to negotiate. He argues that this distinguishes them from US patent-trolls who sue first and negotiate later. Schmitt, *infra* note 144. The HTC case in Germany was ruled on the merit. The patent was held valid and infringed. France Brevets, *Court decision on Validity against HTC in Germany in the NFC patent disputes with France Brevets*, Press Release (Jan. 22, 2016) <http://www.francebrevets.com/sites/default/files/>

RELEASE_JAN%2022%202016_FRANCE_BREVETS.pdf. France Brevets succeeded in reaching a license through settlements using this strategy. It filed a suit against LG, and they quickly settled by agreeing to a license. In 2014, LG agreed a license France Brevets patents to settle the case. France Brevets, *France Brevets Licenses NFC Patents to LG ELECTRONICS as its First Licensee*, Press Release (Aug. 18, 2014). http://www.francebrevets.com/sites/default/files/FB_signs_LGE_RELEASE_18TH%20AUGUST.pdf.

¹³⁶ In 2012, U.S. Patent and Trademark Office requested comments on a Patent Small Claims Proceedings. Department of Commerce, United States Patent and Trademark Office, *Request for Comments on a Patent Small Claims Proceeding in the United States*, 77 Fed. Reg. 243, [Docket No. PTO-P-2012-0050] pgs. 74830-74831 (Dec. 18, 2012). See, e.g., response by Colleen Chien and Michael J. Guo, *Does the US Patent System Need a Patent Small Claims Proceeding?* (2013) (not supporting a small court claim) <http://digitalcommons.law.scu.edu/facpubs/666>; Robert P. Greenspoon, *Is the United States Finally Ready for a Patent Small Claims Court?*, 10 MINN. J. L. SCI. & TECH. 549, 553–57 (2009) (recommending the establishment of a patent small claims court).

¹³⁷ The Constitution also requires that the Congress has the power to establish post offices and post roads. U.S. CONST, art. I, § 8, cl. 7. Congress created a postal system and granted the US Postal Services a monopoly until an exemption was carved out. See, e.g., Jill E. Fisch, *How Do Corporations Play Politics?: The FedEx Story*, 58 VANDERBILT L. REV. 1495 (2005) (discussing the challenge made to the postal service monopoly). The Constitution (Art. I, Sec. 8, Clause 8) has not been read to establish a patent enforcing agency but if it were, such entity should arguably complement private efforts because even the government has limited resources and benefits from private actions. Such entities could also limit the negative externalities associated with the private efforts such as sham litigation and bad practices.

¹³⁸ See e.g. Colleen Chien, *From Arms Race to Marketplace: The Complex Patent Ecosystem and Its Implications for the Patent System* (2010) 62 HASTINGS L. J. 297, 315–17 (discussing the role of intermediaries in the patent system, including sales such as IP auctions).

¹³⁹ Garry A. Gabison, *The Problems with the Private Enforcement of CERCLA: An Empirical Analysis*, 7 GEO. WASH. J. ENERGY & ENVTL. L. 189 (2016) (finding that public agency often act as competitors for private suits and arguing that instead they should act complementarily).

B. Rent seeking behavior: focusing on post-commercial enforcement.

Aside from the upside discussed,¹⁴⁰ PAEs and PMEs bring their own problems. This section investigates the issue with receiving private funds, and the next section investigates the issue with receiving public funds.

First, for the most part, government sponsored PMEs are not Sovereign Patent Funds. They are not state agencies, nor do they behave like a benevolent social planner who minimizes negative externalities and maximizes positive externalities and efficiencies. In practice, these entities often become a public-private partnership: they become more independent and do not remain accountable to the public.

First, because of their independence, they must remain solvent (and potentially profitable to attract investments). This necessity can shift their approach to licensing from pre- to post-commercialization. France Brevets and IP Bridge have resorted to enforcement of infringed patents (stick license).¹⁴¹ For example, France Brevets claims to negotiate patent licenses with potential clients after aggregating patents;¹⁴² but France

¹⁴⁰ See e.g. "These trolls act as a market intermediary in the patent market. Patent trolls provide liquidity, market clearing, and increased efficiency to the patent markets—the same benefits securities dealers supply capital markets." James F. McDonough, *The Myth of the Patent Troll: An Alternative View of the Function of Patent Dealers in an Idea Economy* (2006) 56 EMORY L. J. 189, 190; "By creating options to generate rewards for innovators otherwise shutout of the marketplace . . . Together with contingency fee lawyers whose business models depend on choosing the right patents and the right patentees, NPEs can create important avenues for appropriating rewards for valuable patent rights that are owned by non-market players." David L. Schwartz & Jay P. Kesan, *Analyzing the role of non-practicing entities in the patent system*, (2014) 99 CORNELL L. REV. 425, 434.

¹⁴¹ Nuisance suits differ from stick licensing. Stick licenses are licenses obtained or sought under the threat of litigation. Stick licenses are common and necessary strategies to insure patent holders are remunerated. Stick licenses settle cases while avoiding litigation. If the patent system is to work, litigation or the threat of litigation must also exist. So, stick licenses must also exist. France Brevets general manager explains that they prefer to negotiate first and sue only if the alleged infringer refuses to negotiate. He argues that this distinguishes them from US patent-trolls who sue first and negotiate later. Schmitt, *infra* note 144. The HTC case in Germany was ruled on the merit. The patent was held valid and infringed. France Brevets, *Court decision on Validity against HTC in Germany in the NFC patent disputes with France Brevets*, Press Release (Jan. 22, 2016) http://www.francebrevets.com/sites/default/files/RELEASE_JAN%2022%202016_FRANCE_BRE_VETS.pdf (last visited Sep 21, 2018). France Brevets succeeded in reaching a license through settlements using this strategy. It filed a suit against LG, and they quickly settled by agreeing to a license. In 2014, LG agreed a license France Brevets patents to settle the case. France Brevets, *France Brevets Licenses NFC Patents to LG ELECTRONICS as its First Licensee*, Press Release (Aug. 18, 2014). http://www.francebrevets.com/sites/default/files/FB_signs_LGE_RELEASE_18TH%20AUGUST.pdf (last visited Sep 21, 2018).

¹⁴² "France Brevets" is an investment fund that intends to acquire rights over patents developed through public and private research, to regroup them into a pool, and to license them. *Convention du 2 septembre 2010* (n 128) (author's translation).

Brevets sued large multinationals who were already practicing the patents.¹⁴³

To remain solvent, they may also shift their focus from small claims brought up by SMEs to large ticket items. These entities sue on behalf of the innovator and collect fees.¹⁴⁴ For example, France Brevets uses a contingency-fee model.¹⁴⁵ Contingencies have known limitations: it incentivizes lawyers to focus on lawsuits with high damages.¹⁴⁶

To remain solvent, this independence could lead to excessive litigation¹⁴⁷ and nuisance suits. Nuisance suits are a heavily criticized form of rent seeking.¹⁴⁸ In other words, the government can create deadweight loss when it sponsors instead of oversees PME. Nonetheless, the loss could be more limited than what most private PMEs may inflict. For example, France Brevets and IP Bridge sued large multinationals but have not gone after end-users, SMEs, or startups, which have been the target of many demand letters that epitomize undesirable rent seeking behavior.¹⁴⁹

Second, private interests could exploit these PMEs. Because these entities receive private investments, their investors could exercise pressure to enforce patents against their competitors.¹⁵⁰ For example, IP Bridge received funds and patents from the same entities¹⁵¹ (i.e. NEC, Panasonic,

¹⁴³ France Brevets sued LG Electronics and HTC Corporation in the U.S. and in Germany. See *NXP Semiconductors USA Inc. v France Brevets SAS*, No. C 14-1225 SI (ND Cal 2014) (discussing France Brevets and its litigious efforts against LG and HTC).

¹⁴⁴ Fabienne Schmitt, *Brevets : une PME française gagne contre HTC*, LES ECHOS (Mar. 27, 2015), http://www.lesechos.fr/27/03/2015/lesechos.fr/0204261458707_brevets---une-pme-francaise-gagne-contre-htc.htm (quoting fees a contingency between 30% and 60% of uncapped revenues).

¹⁴⁵ Contingency fee is a common arrangement in the US but a limited concept in Europe. Cento Veljanovski, *Third Party Litigation Funding in Europe*, 8 J. L. ECON. & POLICY 405, 409 (2012) (discussing the limited use or ban of contingency fee in “Austria; Belgium; Cyprus; Czech Republic; Denmark; France; Greece; Ireland; Luxembourg; Malta; the Netherlands; Norway; Poland”).

¹⁴⁶ Steven Shavell, *The Fundamental Divergence Between the Private and the Social Motive to Use the Legal System*, 26 J. LEGAL STUDIES 575, n. 44 (1997).

¹⁴⁷ Thomas J. Miceli, *Do Contingent Fees Promote Excessive Litigation?*, J. LEGAL STUDIES 211 (1994).

¹⁴⁸ See *supra* note 144 and accompanying text.

¹⁴⁹ Lemley & Melamed, *supra* note 2.

¹⁵⁰ Joshua D. Wright & Douglas H. Ginsburg, *Patent Assertion Entities and Antitrust: A Competition Cure for a Litigation Disease?*, 79 ANTITRUST L. J. 501 (2014) (discussing antitrust implication of patent assertion entities where practicing entities sell to PAEs with the aim that these PAEs will assert against their rivals).

¹⁵¹ Einhorn, *supra* note 99.

and Hitachi).¹⁵² In 2015, IP Bridge filed a complaint against TCL Communications¹⁵³ enforcing former Panasonic patents assigned.¹⁵⁴

Distinguishing anticompetitive from financially motivated enforcements can be difficult. Practicing entities obtain patents in their field. If a practicing entity assigns a patent to a government sponsored PME for enforcement or licensing, the PME inevitably enforces the patent against the assignor's competitors. Thus, IP Bridge could have identified TCL as an infringer and could have wanted to monetize the patent. However, the reasons could be anti-competitive¹⁵⁵ and the private investors may have biased a government-sponsored entity's activities. Furthermore, this entity may function as a collusion device.¹⁵⁶ Practitioners can use PMEs or PAEs to assert patents against competitors to avoid counterclaims and reputational damage.¹⁵⁷ Counterclaims are an important part of the patent system because they can facilitate settlements and cross-licensing. Without counterclaims, an alleged infringing practitioner would need to raise a second (as-expensive) patent suit. The patent assignor could leverage the cost of the second suit against the alleged infringer to make negotiations more difficult.¹⁵⁸ In such a situation,

¹⁵² IP Bridge, *Patent Assignment by NEC Corporation to IP Bridge's IP fund*, (Dec. 2, 2014) <http://ipbridge.co.jp/news-en/141202-01e>; IP Bridge, *Additional Large Video Codec related Patent Portfolio Assignment by Panasonic Corporation to IP Bridge's IP Fund and Entry as a Licensor of Patent Pool*, (May 29, 2015) <http://ipbridge.co.jp/news-en/additional-large-video-codec-related-patent-portfolio-assignment-by-panasonic-corporation-to-ip-bridges-ip-fund-and-entry-as-a-licensor-of-patent-pool>.

¹⁵³ *Godo Kaisha IP Bridge 1 v. TCL Communication Technology Holdings Limited et al*, 1:15-cv-00634 (July 24, 2015 D. Del.)

¹⁵⁴ Jacob Schindler, *Japan's sovereign patent fund initiates first legal action in the US, accusing TCL of infringing three SEPs*, INTELLECTUAL ASSERT MANAGEMENT (Sept. 3, 2015), <http://www.iam-media.com/blog/detail.aspx?g=c67fb03e-c954-4e9e-8a31-dd0f6c32834e>.

¹⁵⁵ For example, TCL and Panasonic both manufacture LED/LCD television screens. Panasonic may have flagged the infringement itself and IP Bridge to sue TLC to impede its activities. David Katzmaier, *Game mode on: CNET tests TVs for input lag*, CNET (June 3, 2013), <http://www.cnet.com/news/game-mode-on-cnet-tests-tvs-for-input-lag/>.

¹⁵⁶ Matthew Sipe, *Patent Privateers and Antitrust Fears*, 22 MICHIGAN TELECOMMUNICATIONS AND TECH. L. REV. 191, 222–24 (2016) (for example, if multiple competitors fund and assign their patents to the same government sponsored entity, this entity could act as a joint-venture where they can discuss competitors and as a collusive device. In the case of IP Bridge, NEC, Panasonic, and Hitachi funded and transferred patents to IP Bridge. If NEC was to infringe a Panasonic patent, the PME may not litigate because it might be against its own interests. Instead, it focuses on the competitors of its funders. It cartelizes the funders who might be sued if not complying with the cartel's direction. The PME would have an extensive portfolio that it could leverage in court against cartel members if they deviated. The PME could eliminate their competitors).

¹⁵⁷ *Patent Assertion and U.S. Innovation*, THE WHITE HOUSE, p. 5–6 http://www.whitehouse.gov/sites/default/files/docs/patent_report.pdf (last visited July 29, 2016) (discussing how PAEs are

immune to counterclaims and care little about reputational harm).

¹⁵⁸ *Apple Inc. v. Motorola, Inc.*, 757 F. 3d 1286, 1333 (DC Cir 2014) (discussing injunctions and the eBay factors and defining a “hold out” as “an unwilling licensee of an SEP seeking to avoid a license based on the value that the technological advance contributed to the prior

a government sponsored PME would create further enforcement inefficiencies.

C. International trade and nationalism

Private funding may induce inefficiencies by encouraging profit raising instead of efficient raising behavior. However, the involvement of public entity or public funding raises other concerns of conflict of interest or nationalist behavior. This section looks at these criticisms.

Government sponsored PMEs have been criticized¹⁵⁹ because they could target companies “to advantage domestic firms by harassing foreign competitors.”¹⁶⁰ This statement highlights two potential issues. PMEs can discriminate twice. They can discriminate against foreign companies when seeking patents to enforce (or purchase in the case of PAEs) and they can discriminate against foreign companies when enforcing patents. Intellectual Discovery, IP Bridge, and France Brevets have not openly discriminated when acquiring and selling patents.

Table 7 shows where they acquired their U.S. patents. In the U.S., Intellectual Discovery has registered three hundred and thirty-nine unique transactions with entities from South Korea, the United States, Singapore, Canada, Japan, and Hong Kong.¹⁶¹ In the U.S., IP Bridge has been involved in forty unique transactions involving Japan and United States entities. In the U.S., France Brevets has been involved in twenty-three unique transactions with entities from Europe, Korea, and the United States.

Table 7: Patent assigned to government PAEs

Country of assignor	Intellectual Discovery	IP Bridge	France Brevet
---------------------	------------------------	-----------	---------------

art.”). (In the context of SEPs, when the defendants leverage litigation costs to make negotiation more difficult carries, this phenomenon is named a hold out).

¹⁵⁹ See e.g. Howard Williams, *The U.S. Supreme Court Hopes To Limit Patent Trolling*, FORBES (August 4, 2014) <http://www.forbes.com/sites/realspin/2014/08/04/the-u-s-supreme-court-hopes-to-limit-patent-trolling/>.

¹⁶⁰ Michael J. Meurer and James Bessen, *Congress needs to rein in patent troll* BOSTON GLOBE (November 5, 2014) <http://www.bostonglobe.com/opinion/2014/11/04/congress-needs-rein-patent-trolls/BSuITBqcU1ImtYIrqSK6yO/story.html>.

¹⁶¹ All data is extracted from <http://assignment.uspto.gov/> (last visited Jul. 31 2016).

Home country (or territory)	810	68%	1184	97%	176	95%
Other countries	381	32%	42	3%	9	5%
Total	1191	100%	1226	100%	185	100%

As of July 31, 2016

source: USPTO

All three exhibited a preference for acquiring patents from entities from their home territory. Non-nationalistic reasons can explain this observation. For example, their contact network likely extends further at home. The common language likely helps negotiations. The negotiation culture can also explain preferences to deal with these entities.

These three entities have not exhibited a preference in their assignment strategies. Intellectual Discovery has assigned more patents to non-Korean than Korean entities.¹⁶² France Brevet has only assigned to non-European companies. IP Bridge has exhibited the highest preferences for home-nation entities as an assignor and assignee.

Table 8: Patent assigned by government PAEs

Country of assignor	Intellectual Discovery		IP Bridge		France Brevet	
Home country (or territory)	26	48%	38	100%	0	0%
Other countries	28	52%	0	0%	5	100%
Total	54	100%	1226	100%	185	100%

As of July 31, 2016

source: USPTO

Government sponsored PMEs/PAEs have raised concerns over their licensing and enforcement strategies. So far, these entities have targeted non-home territory entities for enforcement. For example, France Brevets has sued HTC, a Chinese phone manufacturer, and LG, a Korean phone manufacturer. It quickly settled with LG¹⁶³ whereas a German court

¹⁶² See e.g. Ellis, *supra* note 94 (as previously stated, Intellectual Discovery assigned patents to Game and Technology which might be their own shell corporation).

¹⁶³ France Brevets, *France Brevets assigne LG et HTC en contrefaçon*, PRESS RELEASE (December 9, 2013) http://www.francebrevets.com/sites/default/files/FB_NFC_PR_FRENCH_DEC_9.pdf; France

decided the HTC case.¹⁶⁴ France Brevets has granted licenses on the same technology to Sony¹⁶⁵ and Samsung.¹⁶⁶ In the latter cases, France Brevets did not file a suit.¹⁶⁷ Despite its mandate,¹⁶⁸ France Brevets' deals lacked transparency.

Transparency can help diminish the nationalistic fear because competitors could confirm non-discriminatory treatment. Non-discriminatory treatment is part of IP Bridge's stated goal. IP Bridge claims that they "litigate regardless of nationality, and offer equitable deals to any company as well."¹⁶⁹ Nonetheless, IP Bridge has sued direct competitors of their patent assignors.

Transparency and disclosure of licensing terms has other positive externalities. Disclosure can help create best practices and inform market participants about expected costs, standard terms, etc.

Discriminatory results do not signify discriminatory intent. For example, a country may not have any companies in the market; hence, any action it brings would be against foreign companies.¹⁷⁰ Attributing such intent requires a logic leap.

Assuming that these PME's target foreign entities, these actions would harm its citizen and could harm national companies. First, any royalty collected would increase the cost of doing business. This increase is partially passed on to consumers, who lose purchasing power.

Brevets, *France Brevets Licenses NFC Patents to LG ELECTRONICS as its First Licensee*, PRESS RELEASE (August 18, 2014) http://www.francebrevets.com/sites/default/files/FB_signs_LGE_RELEASE_18TH%20AUGUST.pdf.

¹⁶⁴ *Supra* note 141.

¹⁶⁵ *France Brevet Licenses NFC Patents to Sony*, PRESS RELEASE (April 4, 2016) http://www.francebrevets.com/sites/default/files/France%20Brevet%20Licenses%20NFC%20Patents%20to%20Sony_eng.pdf.

¹⁶⁶ *BRIEF-Inside Secure says France Brevets licenses NFC patents to Samsung*, REUTERS (May 30, 2016) <http://www.reuters.com/article/idUSFWN18R04A>.

¹⁶⁷ Since the patents had already been challenged and held valid, Sony and Samsung could only opt to license the technology unless they wanted to challenge infringement.

¹⁶⁸ Convention du 2 septembre 2010 entre l'Etat, l'Agence nationale de la recherche et la Caisse des dépôts et consignations relative au programme d'investissements d'avenir (action « France Brevets »), Journal Officiel de la République Française (JORF) n°0205 p. 16153, n.1 (Sep. 4, 2010), <https://www.legifrance.gouv.fr/eli/convention/2010/9/2/PRMX1022556X/jo/texte>.

¹⁶⁹ Jacob Schindler, *Japan's sovereign patent fund initiates first legal action in the US, accusing TCL of infringing three SEPs*, INTELL. ASSET MNGT (Sep. 3, 2015) <http://www.iam-media.com/Blog/Detail.aspx?g=c67fb03e-c954-4e9e-8a31-dd0f6c32834e>.

¹⁷⁰ Note that France, Korea, and Japan all have players in most markets. So, their actions could be conceived as protectionist in spite of their unknown true intent.

Second, any action opens the door to retaliation on companies doing business abroad. For example, France Brevets has collected licensing fees from LG and Samsung, Korean phone manufacturers, and Sony, a Japanese equipment manufacturer. Korea and Japan have their own government sponsored PME's. These Korean and Japanese PME's may retaliate against French manufacturers in the much larger Asian market.¹⁷¹ Even if some countries have not yet created their own PME's, they may do so in the future.¹⁷²

Retaliation is a certain risk. Bilateral exposure should decrease nationalistic intent.¹⁷³ In the dumping context, one study found that anti-dumping allegations are less likely against a country in which relation exposure is higher.¹⁷⁴

Finally, these entities are government-sponsored or state-owned. The three discussed entities have acted on home and foreign soil. Multilateral or bilateral international trade treaties often address the activities of state-owned enterprises. For example, the General Agreement on Tariffs and Trade that has been signed by France, Japan, and Korea addresses "State Trading Enterprises."¹⁷⁵

More recent trade agreements like the agreement between Korea and the United States (KORUS)¹⁷⁶ address state enterprises more specifically. The treaty specifies that:

Each Party shall ensure that **any state enterprise** that it establishes or maintains:

(a) acts in a manner that is not inconsistent with the Party's obligations under this Agreement wherever such enterprise

¹⁷¹ France has few phone manufacturers that operate worldwide: Alcatel-Lucent (acquired by Nokia in 2015), Archos, Group Bull, MobiWire, and Wiko (majority owned by Tinno Mobile, a Chinese group). Note that the patent enforced by France Brevets against HTC and LG had been assigned by a non-practitioner: so, the litigation's aim was financial instead of strategic and it would be insulated from retaliation, but other French companies would not. A governmental—even sponsored—entity would be aware of the negative impacts on its trade relations.

¹⁷² Jacob Schindler, *Taiwan remains a bystander as patent fund activity heats up in China, Korea and Japan*, INTELL. ASSET MNGT. (Mar. 28, 2016) <http://www.iam-media.com/blog/detail.aspx?g=456d66a4-c015-45d7-b12d-cd75abe047eb> (France Brevet also sued HTC, a Taiwanese phone manufacturer. Taiwan does not currently have such government sponsored PME but have considered and attempted to create one).

¹⁷³ Przemyslaw Kowalski, Max Büge, Monika Sztajerowska, & Matias Egeland, *State-Owned Enterprises: Trade Effects and Policy Implications*, OECD TRADE POLICY PAPERS, No. 147, OECD Publishing (2013) <http://dx.doi.org/10.1787/5k4869ckqk7l-en> (in the past, state-owned enterprises have arguably acted inconsistently with international regulations and treaties).

¹⁷⁴ Bruce A. Blonigen & Chad P. Bown, *Antidumping and retaliation threats*, 60 J. INT'L ECON. 249 (2003).

¹⁷⁵ GATT Art. XVII (The treaty specifies that these entities must "act in a manner consistent with the general principles of non-discriminatory treatment prescribed in this Agreement for governmental measures affecting imports or exports by private traders.")

¹⁷⁶ United States-Korea Free Trade Agreement Implementation Act, H.R. 3080 (112th) (KORUS)

exercises any regulatory, administrative, or other governmental authority that the Party has delegated to it, such as the power to expropriate, **grant licenses**, approve commercial transactions, or **impose** quotas, fees, or **other charges**; and
 (b) accords non-discriminatory treatment in the sale of its goods or services to covered investments.¹⁷⁷

These treaties focus on non-discriminatory treatment and hold the signatory party responsible for the actions of its entities. KORUS specifies that granting licenses and imposing charges is an example of activities demanding equal treatment. Both activities are central to PME activities. Actions of government-sponsored PMEs might be construed as government actions. If governmental actions affect trade, these actions can be interpreted as violating international trade agreements and lead to sanctions. Within the context of KORUS, if Intellectual Discovery acted against US companies discriminatorily, its actions could be challenged.¹⁷⁸ However, these government sponsored PMEs/PAEs would not likely lead to international sanctions because the definition of state entity remains contentious.¹⁷⁹ In recent cases,¹⁸⁰ the World Trade Organization established that to be qualified as a “public body,” an entity must exhibit more than financial backing from a government.¹⁸¹ These entities must perform governmental functions.¹⁸²

¹⁷⁷ KORUS Art. 16-3 (emphasis added).

¹⁷⁸ *Godo Kaisha IP Bridge 1*, *supra* note 106 (this potential issue may explain why Intellectual Discovery has yet to enforce directly patents against private parties.). *Game and Technology Co. Ltd v. Blizzard Entertainment, Inc. et al.*, 2:2015cv01257 (ED Tex. Jul. 9, 2016); *Game and Technology Co. Ltd v. Riot Games, Inc.*, 2:2015cv01258 (ED Tex. Jul. 9, 2016); *Game and Technology Co. Ltd v. Valve Corporation*, 2:15-cv-01259 (ED Tex. Jul. 9, 2016); *Game and Technology Co. Ltd v. Wargamingnet LLP et al.*, 2:2015cv01260 (ED Tex. Jul. 9, 2016) (instead, it may have shielded from international sanctions by divesting the eight patents enforced). Reel Frame 34847-659.

¹⁷⁹ Nguyen, *supra* note 13, at 1288–94 (discussing in detail the World Trade Organization implications, Nguyen states that these entities could be in violation of WTO agreements).

¹⁸⁰ *United States - Countervailing Duty Measures on Certain Products from China* - AB-2014-8 - Report of the Appellate Body (WT/DS437/AB/R); *United States - Countervailing Measures on Certain Hot-Rolled Carbon Steel Flat Products from India* - AB-2014-7 - Report of the Appellate Body (WT/DS436/AB/R) (in these cases, the US Department of Commerce investigated subsidies of foreign goods imported to the US. The US imposed countervailing duties. Those duties were stuck down in court because the US focused on entity ownership to classify them as government bodies).

¹⁸¹ *United States - Countervailing Duty Measures on Certain Products from China* - AB-2014-8 - Report of the Appellate Body (WT/DS437/AB/R) §§ 7.72–.75.

¹⁸² *Id.* at § 7.69 (the government-backed entity must carry out the “essence” of governmental function. This includes “the performance of governmental functions or the fact of being vested with, and exercising, the authority to perform such functions are core commonalities between government and public body.”).

Sanctions against a government for sponsoring a PME would fail because it requires trade authorities to make too many leaps.¹⁸³ Even if patent enforcement and licensing have been compared to an innovation tax,¹⁸⁴ the tax is not systematic on all imports.¹⁸⁵ These PMEs behave more like private entities than government entities. Japan, Korea, France, etc. can point to private entities that offer the same services.¹⁸⁶

Even if sanctions can be avoided, the overt nationalist or protectionist criticisms will continue. But these criticisms would miss the point that the private PAEs or PMEs would fill that space without the safeguard that a government could provide.

CONCLUSION

These entities are neither private nor public. Since they must generate profit, some have behaved less like a benevolent social planner and more like a for-profit entity. Over 90% of the IP Bridge patents were assigned by large multinationals, who are capable of enforcing their own patents. The SMEs remain left to themselves to enforce their patents.

These entities may nonetheless benefit some IP holders. Close to 90% of Intellectual Discovery patents were assigned by research institutes and universities. These institutes may not have profited from their IP.¹⁸⁷

¹⁸³ Annex 11-B § 3 (most trade agreement, like the KORUS agreement, also address government actions that elevate to the level of expropriation. Whether an injunction amounts to such expropriation requires another leap. The trade treaty specifies that an indirect government action can elevate to expropriation. The analysis remains case specific. The analysis requires investigating the objective and context of the government action. Enhancing patent enforcement would not likely constitute an objective valuable enough to shield from potential sanctions. *See also Metalclad Corp. v. United Mexican States*, 40 ILM 36 (ICSID 2000) (holding that a Mexican municipality and hence the Mexican government did not treat the plaintiff fairly when it fails to transparently deny a construction permit to a waste disposal facility for environment reasons after it was lead to invest under the belief it would be granted. However, lawfully granted injunction – particularly from foreign courts – would not raise to this level of expropriation).

¹⁸⁴ *See e.g.* Gerard N. Magliocca, *Blackberries and barnyards: Patent trolls and the perils of innovation*, 82 NOTRE DAME L. REV. 1809, 1810, 1837 (2007).

¹⁸⁵ Subsidies of exports and taxes of imports have arguably comparable effects. Only a few companies are pursued and “taxed.” In the cases discussed, the taxation is performed on US soil, a foreign jurisdiction; hence, it could be construed as a subsidy instead of a tax. The PMEs have mostly sued in foreign companies in US courts.

¹⁸⁶ Even if the innovation tax or subsidy imposed by these PMEs could be compared to discriminatory governmental actions, their imposition relies on patent infringement theory. It requires a court judgment to show that the defendants did not infringe. One who seeks equity must do equity. In this case, it is not clear that equity has been performed by all parties.

¹⁸⁷ *See e.g.*, Damien Geradin, Anne Layne-Farrar, and A. Jorge Padilla, *Elves or Trolls? The role of nonpracticing patent owners in the innovation economy*, 21 INDUSTRIAL AND CORPORATE CHANGE 73 (2011) (arguing that non-practicing entities can have an upside); Mark A. Lemley & Robin Feldman, *Is Patent Enforcement Efficient*, 98 BU L. REV. 649 (2018) (discussing the inefficiencies associated with non-practicing patent entities while acknowledging their theoretical upsides. This tool in the hand of a benevolent social planner could set an example for the rest of the industry. This standard setting resonates in other facets of government (e.g., employment conditions, salary, etc.). PAEs/PMEs like every tool have upsides and downsides).

To harness the upside and decrease the downside, governments can create not-for-profit public-private partnerships. Such a not-for-profit entity could serve the IP system and the right holders better.

Since they receive public backing, their actions receive more scrutiny. Discriminatory results may not correlate with discriminatory intent. Transparency remains the government's most potent ally and these entities should set the tone for the rest of the industry.

If the governments are willing to enter this market where reputational damages are abundant and risks are plenty, it signals that they believe they have a lot to earn. Whether it is addressing inefficiencies of the IP system or simply raising profits for right holders, these entities are propagating. For example, in 2014 in China, Ruichuan IPR Funds was launched as a public-private partnership.¹⁸⁸

The action of these government sponsored PME's should be addressed in perspective. They account for a small portion of patents and suits in the United States. The three PME's together hold about 2,500 U.S. patents. Since their inception in 2010, the USPTO has granted over 1.5 million patents.¹⁸⁹ These PME's brought a handful of suits in the U.S. in 2015. In comparison, in the 2014 fiscal year, 5,550 patent suits were filed in Federal District Courts.¹⁹⁰ These entities remain a new phenomenon. They are still perfecting their business model, but they should be encouraged to adopt best practices before it is too late.

¹⁸⁸ Williams, *supra* note 159; Meurer & Bessen, *supra* note 160; Peter Roff, *The frightening emergence of government patent trolls*, WASHINGTON TIMES (Aug. 31, 2014) <http://www.washingtontimes.com/news/2014/aug/31/roff-the-frightening-emergence-of-government-paten/>.

¹⁸⁹ U.S. Patent Activity Calendar Years 1790 to the Present, USPTO, https://www.uspto.gov/web/offices/ac/ido/oeip/taf/h_counts.htm.

¹⁹⁰ U.S. Courts, *Annual Report of the Director: Judicial Business of the United States Courts*, ADMINISTRATION OFFICE OF THE US COURTS, Table C-2 (Sept. 2015).