

FINTECH: NEW BATTLE LINES IN THE PATENT WARS?

Megan M. La Belle[†] & Heidi Mandanis Schooner[†]

Historically, financial institutions have relied on trade secrets and first-mover advantages, rather than patents, to protect their inventions. For the few financial patents that were issued, conventional wisdom was that they weren't terribly interesting or important. In our 2014 study on financial patents, we showed that banks were breaking from past patterns and increasingly seeking patent protection. We explained that financial institutions were primarily building their patent portfolios as a defensive measure—i.e., to protect themselves from infringement suits. Indeed, the finance industry successfully lobbied Congress to include provisions in the America Invents Act of 2011 that made it easier to invalidate financial patents through administrative review. Yet, two significant developments call for a revisit of our 2014 study: first, the rise of fintech and, second, the recent \$300 million verdict in the first bank-on-bank patent infringement suits—United Services Automobile Association (USAA) v. Wells Fargo. This paper explores how the rise of fintech has changed the purpose of patenting among banks, and what a possible fintech patent war would mean for the future of both the financial and patent systems in this country.

TABLE OF CONTENTS

INTRODUCTION	278
I. TRADITIONAL FEATURES OF FINANCIAL INNOVATION.....	284

[†] Professor, Catholic University of America, Columbus School of Law.

[†] Professor, Catholic University of America, Columbus School of Law. We would like to thank the participants at the various roundtables, conferences, and symposia where we presented working drafts of this paper. We would also like to thank Peter Kim, John Schooner, Dawn Sobol, and Steve Young for their excellent research assistance.

II. FINANCIAL INNOVATION AND THE PATENT SYSTEM	287
A. <i>The Federal Circuit</i>	287
B. <i>Patent Reform</i>	290
III. CBM REVIEW.....	292
A. <i>Section 18 and CBM Review</i>	293
B. <i>The PTO's Interpretation of Section 18</i>	294
C. <i>The PTAB's Treatment of CBM Patents</i>	296
D. <i>The Federal Circuit and CBM Review</i>	298
1. The Federal Circuit's Early Interpretation of Section 18	298
2. The Federal Circuit's Current Interpretation of Section 18	303
E. <i>The Future of CBM</i>	306
IV. THE RISE OF FINTECH AND FINTECH PATENTS.....	312
A. <i>Rise of Fintech</i>	312
B. <i>Fintech Patents</i>	317
V. BANK-ON-BANK PATENT WARS	320
A. <i>Patent Wars of the Past</i>	321
B. <i>USAA v. Wells Fargo</i>	328
VI. THE FUTURE OF FINTECH PATENTS.....	339
A. <i>Fintech Patent Wars</i>	339
B. <i>Alternatives to Patent War</i>	346
CONCLUSION	349

INTRODUCTION

When fintech¹ dreams dance in our heads, Satoshi Nakamoto² is choreographing a technological revolution that democratizes finance by

¹ Fintech is, pretty obviously, a portmanteau of “financial” and “technology.” For a discussion of the definition of fintech, see *infra* Section IV.A.

² Satoshi Nakamoto is the pseudonym for the creator of bitcoin and the first blockchain database. See Benjamin Pirus, *Internet Pioneer Still Argues Bitcoin Creator Satoshi Nakamoto Is This Obscure Mathematician*, FORBES (May 30, 2020, 10:30 AM), <https://www.forbes.com/sites/benjaminpirus/2020/05/30/internet-pioneer-argues-bitcoin-creator-satoshi-nakamoto-is-this-obscure-mathematician/#655035782eb5> [https://perma.cc/3S3J-Q4T5].

eliminating legacy firms and unleashing cheap financial services to the masses. When fintech occupies our nightmares, artificial intelligence controlled by behemoth tech companies takes control, as our savings and investments vanish into cyberspace. The reality of fintech, very likely, lies somewhere in between these utopian and dystopian imaginations.³ And yet, that reality could have its own real drama if patent protection becomes an important feature of fintech.

In 2011, Apple sued Samsung for copying its iPhone design and set off a “patent war” between the two technology companies that raged on in the courts and in the public square for years.⁴ Yet, the Apple versus Samsung patent war was not a new phenomenon; patent wars have a long history in the United States.⁵ Much older inventions such as the telephone, sewing machine, airplane, laser, and diaper have all been the subject of patent wars.⁶ Why patent wars erupt in certain industries is hard to pinpoint. Perhaps overly aggressive patent owners’ efforts to quash competition are to blame. Or maybe the questionable validity of a patent provides the incentive for accused infringers to fight back instead of taking licenses. Another possibility is that particularly valuable technologies are worth the cost of war. Truth be told, identifying a single

³ Professor Saule Omarova describes opposing visions of fintech as follows: “Fintech may present a unique opportunity to correct the increasingly problematic imbalance between private misallocation of credit and the public’s ability to modulate credit aggregates, or it may further intensify that imbalance.” Saule T. Omarova, *New Tech v. New Deal: Fintech as a Systemic Phenomenon*, 36 YALE J. REG. 735, 742 (2019).

⁴ See, e.g., Kurt Eichenwald, *The Great Smartphone War*, VANITY FAIR (May 3, 2014), <https://www.vanityfair.com/news/business/2014/06/apple-samsung-smartphone-patent-war> [<https://perma.cc/R8PR-YYBQ>]; Jack Nicas, *Apple and Samsung End Smartphone Patent Wars*, N.Y. TIMES (June 27, 2018), <https://www.nytimes.com/2018/06/27/technology/apple-samsung-smartphone-patent.html> [<https://perma.cc/5Z33-9HVC>]; Andrea Peterson, *The Smartphone Patent War Between Apple and Samsung Is Headed to the Supreme Court*, WASH. POST (Mar. 21, 2016, 5:51 PM), <https://www.washingtonpost.com/news/the-switch/wp/2016/03/21/the-smartphone-patent-war-between-apple-and-samsung-is-headed-to-the-supreme-court> [<https://perma.cc/UB2U-RUFZ>].

⁵ Adam Mossoff, *Patents as Commercial Assets in Political, Legal and Social Context*, 51 TULSA L. REV. 455, 465 (2016) (reviewing CHRISTOPHER BEAUCHAMP, *INVENTED BY LAW: ALEXANDER GRAHAM BELL AND THE PATENT THAT CHANGED AMERICA* (2015)).

⁶ See *id.*; see also Colleen V. Chien, *Reforming Software Patents*, 50 HOUS. L. REV. 325, 336 (2012); Karl Jorda, *Commentary: The Thirty-Year Laser Patent War*, 43 IDEA: J.L. & TECH. 545 (2003); Adam Mossoff, *Patent Licensing and Secondary Markets in the Nineteenth Century*, 22 GEO. MASON L. REV. 959, 963–64 (2015).

cause of any one of these patent wars is impossible.⁷ What history does make clear, however, is that patent wars will persist. The question, then, is which industry is most likely headed for battle.

Commentators make headlines with speculation about future battle lines in the patent wars. The automobile industry, for example, is highlighted because of an uptick in patenting among manufacturers of technologies for self-driving and connected cars.⁸ Companies like Ford, Toyota, and Hyundai are obtaining patents at far greater rates than in the past. In 2018, Ford Global Technologies, LLC—the intellectual property arm of Ford Motor Company—was granted 2,123 patents, ranking it fourteenth on the list of issued patents that year.⁹ But these traditional players are not alone, as tech firms like Uber and Waymo are also securing patents in this space.¹⁰ Still, industry insiders remain skeptical about the possibility of a patent war in the auto industry because, historically, disputes among carmakers have been resolved quietly outside the courtroom.¹¹

A looming patent war over the internet of things (IoT) has also generated a good deal of chatter.¹² IoT technologies—which generally refer to interconnected physical devices that collect and exchange information over the internet—include devices like the Fitbit, Amazon Echo, and Nest Thermostat.¹³ IoT is expected to expand rapidly in the near future with the introduction of 5G to connected cars, appliances

⁷ See, e.g., Pramath Malik & Manikandan Balasubramanian, *In Search of the Next Patent War*, IAM (June 1, 2015), <https://www.iam-media.com/litigation/search-next-patent-war> [https://perma.cc/VE2N-X5MG].

⁸ Matthew Bultman, *The Next Big Patent War? It Likely Won't Be in Detroit*, LAW360 (Feb. 7, 2019, 7:30 PM), <https://www.law360.com/articles/1126973/the-next-big-patent-war-it-likely-won-t-be-in-detroit> [https://perma.cc/G8VP-R3XN].

⁹ INTELLECTUAL PROP. OWNERS ASS'N, TOP 300 ORGANIZATIONS GRANTED U.S. PATENTS IN 2018 (2019), <https://ipo.org/wp-content/uploads/2019/07/2018-Top-300-Final.pdf> [https://perma.cc/4FGA-CXFT].

¹⁰ Bultman, *supra* note 8.

¹¹ *Id.*

¹² See, e.g., Kenie Ho, *Internet of Things: Another Industry Patent War?*, 8 LANDSLIDE 34 (2015); Steven Pepe, Kevin J. Post & Lance W. Shapiro, *Internet of Things: Next Patent War Zone*, BLOOMBERG L. (Jan. 10, 2018, 7:06 PM), <https://news.bloomberglaw.com/tech-and-telecom-law/internet-of-things-next-patent-war-zone?context=search&index=1> [https://perma.cc/U7Y9-8QN2].

¹³ See, e.g., Scott R. Peppet, *Regulating the Internet of Things: First Steps Toward Managing Discrimination, Privacy, Security, and Consent*, 93 TEX. L. REV. 85, 89 (2014).

(like refrigerators), and airplanes, to name just a few.¹⁴ Some predict that IoT will be at the center of the next patent war because the sheer number of patents involved, together with the need for industry-wide compatibility standards will make licensing arrangements (particularly with respect to standard essential patents) difficult to negotiate.¹⁵ In short, because IoT requires the convergence of disparate systems into a unified technology, it provides fertile ground for the next patent war.

Others predict that the next major patent war will surround the rapidly growing cannabis industry.¹⁶ Not only are patents being issued on various strains of marijuana plants, but companies are also looking to expand their patent portfolios on various technologies related to cannabis. Devices and methods for delivering marijuana products, chemical compounds derived from marijuana, and edible marijuana products are among the new technologies that are potentially subject to patent protection.¹⁷ Indeed, last year, a Canadian company was issued a U.S. patent that covers a supposedly groundbreaking method for processing cannabis oil.¹⁸ But since marijuana remains illegal in the United States under federal law,¹⁹ the cannabis industry may be reluctant to become entangled in a prolonged legal battle over patents.

¹⁴ See, e.g., Marshall Phelps, *Is 5G Being Weaponized?*, FORBES (Feb. 25, 2019, 1:22pm), <https://www.forbes.com/sites/marshallphelps/2019/02/25/is-5g-being-weaponized/#73002abc3a61> [https://perma.cc/U5N7-JHF6].

¹⁵ *Id.*; see also Ho, *supra* note 12; Pepe et al., *supra* note 12. Standard essential patents are “patents essential to the implementation of standards in technology products.” Jorge L. Contreras, *Taking It to the Limit: Shifting U.S. Antitrust Policy Toward Standards Development*, 103 MINN. L. REV. HEADNOTES 66, 67 (2018).

¹⁶ Brett Schuman & Cynthia Hardman, *Is a Cannabis Patent War Looming?*, SILICON VALLEY BUS. J. (Jan. 4, 2018, 10:26 AM), <https://www.bizjournals.com/sanjose/news/2018/01/03/cannabis-patent-wars.html> [https://perma.cc/P4PJ-C4T9].

¹⁷ Madison Margolin, *Future Weed: Formulations, Patents and Where Cannabis Is Going Next*, ROLLING STONE (Jan. 20, 2019, 9:00 AM), <https://www.rollingstone.com/culture/culture-features/future-weed-formulations-patents-and-where-cannabis-is-going-next-781439> [https://perma.cc/M4VL-Y47L].

¹⁸ Press Release PR Newswire, *Nextleaf Solutions Issued Significant U.S. Patent for Cannabis Post-Extraction Processing*, MKTS. INSIDER (Sept. 3, 2019, 4:19 PM), <https://markets.businessinsider.com/news/stocks/nextleaf-solutions-issued-significant-u-s-patent-for-cannabis-post-extraction-processing-1028495314> [https://perma.cc/4X3T-LV87].

¹⁹ Aaron Smith, *The U.S. Legal Marijuana Industry is Booming*, CNN MONEY (Jan. 31, 2018, 4:03 PM), <https://money.cnn.com/2018/01/31/news/marijuana-state-of-the-union/index.html> [https://perma.cc/A9ZP-ZFZA].

Most pertinent to this Article is the possibility of a patent war erupting over fintech. Fintech products like cryptocurrencies and robo-financial advisors capture our imagination much like the Jetsons' flying car did a generation ago. Moreover, the narrative of fintech startups challenging their stodgy bank competitors echoes the classic David versus Goliath struggle. While some fintech firms have successfully challenged banks (the success of Quicken Loans is an example), it remains unclear whether fintech firms will truly disrupt the banking industry.²⁰ Consider blockchain platforms²¹—one of the most anticipated financial innovations in recent history. While many fintech startup firms are seeking to develop blockchain applications, banks are not likely to be left behind.²²

Conventional wisdom has been that financial institutions do not rely on patent rights to protect their innovations. Historically, many financial products were not patentable because they were deemed abstract ideas and thus not protectable under certain judicially-created exceptions to 35 U.S.C. § 101—the statute governing patentable subject matter. What is more, because financial innovation was fast-paced and constantly evolving, the industry was better served by first-mover advantages and trade secrets as opposed to patents, which take more time, effort, and resources to secure.²³ Thus, banks did not patent all that much,²⁴ and the few financial patents they did issue were not considered terribly interesting or important.

In our 2014 study of bank patents,²⁵ we showed that banks were breaking from past patterns and increasingly seeking patent protection. We traced the changes in law that allowed for this shift and explored

²⁰ See, e.g., René Lacerte, *Banks vs. FinTech? No Contest. Banks Win*, AM. BANKER (Jan. 8, 2016, 12:00 PM), <https://www.americanbanker.com/opinion/banks-vs-fintech-no-contest-banks-win> [<https://perma.cc/F4HV-GFHG>].

²¹ See *infra* Part IV for discussion of blockchain and other distributed ledger technologies.

²² See *infra* Part V (regarding banks' patent activity).

²³ Megan M. La Belle & Heidi Mandanis Schooner, *Big Banks and Business Method Patents*, 16 U. PA. J. BUS. L. 431, 470–80 (2014) (discussing the patent activity of large banks).

²⁴ In 2009, Robert M. Hunt observed that only one in ten business method patents were obtained by financial institutions. Robert M. Hunt, *Business Method Patents and U.S. Financial Services* (Fed. Reserve Bank of Phila., Working Paper No. 08-10, 2009), <https://www.philadelphiafed.org/-/media/research-and-data/publications/working-papers/2008/wp08-10.pdf> [<https://perma.cc/PAU6-GWN7>].

²⁵ La Belle & Schooner, *supra* note 23.

banks' incentives to patent their innovation. Several significant developments call for a revisit of our earlier study: first, the precipitous rise of fintech, which is seen, at least by its enthusiasts, as not just a continuation of a long history of financial innovation but rather a leap forward that will transform financial services; second, the continued interest in patenting by banks, including applications involving blockchain and other cutting-edge innovations; and, third, evolution of precedent of the Covered Business Method (CBM) program, which allows parties facing infringement claims on patents for financial products or services to initiate an administrative review of the patent's validity. Our 2014 study examined the early experience with CBM proceeding, and here we revisit CBM as the 2020 sunset date draws near. Finally, the recent \$300 million verdicts in the first-ever patent infringement cases brought by one bank against another—*United Services Automobile Ass'n (USAA) v. Wells Fargo Bank*²⁶—may signal a significant shift in the way banks think about and utilize patents.

The remainder of this Article proceeds as follows. Part I provides background on the traditional features of financial innovation. Part II explores the relationship between financial innovation and the patent system, with a focus on the creation of the United States Court of Appeals for the Federal Circuit, its impact on financial innovation, and the call for reform that culminated in the passage of the Leahy-Smith America Invents Act (AIA) of 2011. Part III then discusses CBM proceedings, the primary feature of the AIA directed at financial innovation. Parts IV and V turn to the rise of fintech, the increasing importance of patents to the finance industry, and the evolving role of patent litigation in financial innovation, specifically, the implications of *USAA v. Wells Fargo*—the first bank-on-bank patent infringement suits. Finally, Part VI considers the possibility of a fintech patent war. It explores the battle lines that could be drawn among the various interested parties, as well as alternative outcomes, which could have lasting implications on the financial industry and the patent system.

²⁶ Complaint, *United Servs. Auto. Ass'n v. Wells Fargo Bank*, No. 2:18-CV-00366 (E.D. Tex. Aug. 17, 2018); Verdict Form at 7, *United Servs. Auto Ass'n v. Wells Fargo Bank*, No. 2:18-CV-00366 (E.D. Tex. Aug. 17, 2018); Complaint, *United Servs. Auto Ass'n v. Wells Fargo Bank*, No. 2:18-CV-00245 (E.D. Tex. June 7, 2018); Verdict Form at 6, *United Servs. Auto Ass'n v. Wells Fargo Bank*, No. 2:18-CV-00245 (E.D. Tex. June 7, 2018).

I. TRADITIONAL FEATURES OF FINANCIAL INNOVATION

Definitions of financial innovation include both the positive and the normative. The positive definition focuses on the creation of something new—a new product, market, technology, or institution.²⁷ The normative focuses on the benefits derived from financial innovation—decrease in costs, increase in access, or improved products or services.²⁸ Both the demand side (customers) and the supply side (financial institutions) stimulate financial innovation. Customers demand more and better products and services, e.g., faster loan approvals and greater product choice.²⁹ Financial institutions seek lower costs and higher profits, e.g., technological improvements that reduce operating expenses. Naturally, while financial innovation can be beneficial it can also be costly if, for example, innovations stifle competition.³⁰

Financial innovation is often grouped into categories. Some scholars have sorted financial innovation into these buckets: new products or services, new processes/procedures, and new organizations.³¹ This grouping would distinguish adjustable rate mortgages (a new product) from risk modeling (a new procedure) from fintech national banks³² (a

²⁷ Peter Tufano's definition focuses on newness and widespread adoption: "Broadly speaking, financial innovation is the act of creating and then popularizing new financial instruments as well as new financial technologies, institutions and markets." Peter Tufano, *Financial Innovation*, in HANDBOOK OF THE ECON. OF FIN. 310 (George M. Constantinides, M. Harris & Rene M. Stulz eds., 2003).

²⁸ W. Scott Frame and Lawrence White define financial innovation as "something new that reduces costs, reduces risks, or provides an improved product/service/instrument that better satisfies participants' demands." W. Scott Frame & Lawrence J. White, *Empirical Studies of Financial Innovation: Lots of Talk, Little Action?*, 42 J. ECON. LITERATURE 116, 118 (2004).

²⁹ For example, mobile-obsessed millennials are often credited or blamed for driving innovation. FIN. STABILITY BD., FINANCIAL STABILITY IMPLICATIONS FROM FINTECH: SUPERVISORY AND REGULATORY ISSUES THAT MERIT AUTHORITIES' ATTENTION 35 (2017), <http://www.fsb.org/wp-content/uploads/R270617.pdf> [<https://perma.cc/7QKY-TAV4>]

³⁰ For a discussion of the costs and benefits of financial innovation, see La Belle & Schooner, *supra* note 23, at 438–40.

³¹ See Frame & White, *supra* note 28, at 118.

³² The Office of the Comptroller of the Currency (OCC), a federal bank regulator, recently announced that it would begin accepting applications for national bank charters from fintech companies engaged in banking. See *OCC Begins Accepting National Bank Charter Applications from Financial Technology Companies*, OFF. OF THE COMPTROLLER OF THE CURRENCY (July 31, 2018), <https://www.occ.gov/news-issuances/news-releases/2018/nr-occ-2018-74.html>

new organization). Others have delineated functional categories: payments, saving, investment, and risk-bearing.³³ This distinguishes such things as general purpose credit cards (payments) from pension plans (savings) and student loans (investment) from insurance (risk-bearing).

No matter the category, finance is in a constant state of change, and many financial innovations coincide with important moments in history. In 1863, Congress established new national (i.e., federally chartered) banks as a means to finance the Civil War.³⁴ The laws relevant to the creation of national banks were expected to lead to the demise of state-chartered banks.³⁵ Yet, the creation of the checking account allowed state-chartered banks to survive,³⁶ and they persist to this day.³⁷ In a much more recent historical moment, innovative financial products were blamed, at least in part, for the Financial Crisis of 2007–2009.³⁸ The unregulated over-the-counter derivatives, in particular the credit default

[<https://perma.cc/9UV5-4FLU>]. Significant controversy surrounds its decision. Both the Conference of State Bank Examiners and the New York Department of Financial Services have filed suits against the OCC claiming that issuing such charters exceeds the OCC's authority. Alan S. Kaplinsky, *State Regulators File Second Lawsuit Opposing OCC Fintech Charter*, CONSUMER FIN. MONITOR (Oct. 29, 2018), <https://www.consumerfinancemonitor.com/2018/10/29/state-regulators-file-second-lawsuit-opposing-occ-fintech-charter> [<https://perma.cc/6END-Q7JS>].

³³ Robert E. Litan, *In Defense of Much, But Not All, Financial Innovation*, BROOKINGS INST. (Feb. 17, 2010), https://www.brookings.edu/wp-content/uploads/2016/06/0217_financial_innovation_litan.pdf [<https://perma.cc/M5ZV-SKS5>].

³⁴ See generally Heidi Mandanis Schooner, *Recent Challenges to the Persistent Dual Banking System*, 41 ST. LOUIS U. L.J. 263, 265 (1996).

³⁵ The expectation was that when national banks were established by Congress in 1863, state banks would convert their charters. *Id.* When that didn't happen, Congress passed a tax on state-issued bank notes. *Id.*; see also *History: 1863–1865, Founding of the National Banking System*, OFF. OF THE COMPTROLLER OF THE CURRENCY, <https://www.occ.treas.gov/about/who-we-are/history/1863-1865/index-occ-history-1863-1865.html> [<https://perma.cc/W7XT-7F5X>].

³⁶ *History: 1866–1913, The System in Operation*, OFF. OF THE COMPTROLLER OF THE CURRENCY, <https://www.occ.treas.gov/about/who-we-are/history/1866-1913/index-occ-history-1866-1913.html> [<https://perma.cc/2QHL-5U7Q>].

³⁷ In 2016, the Federal Deposit Insurance Corporation supervised 1,563 state-chartered banks, and the Federal Reserve supervised 829. FED. DEPOSIT INS. CORP, 2016 ANNUAL REPORT 25 (2017), https://www.fdic.gov/about/strategic/report/2016annualreport/2016ar_final.pdf [<https://perma.cc/5GKU-RD4U>]; BD. OF GOVERNORS OF THE FED. RES. SYS., FEDERAL RESERVE 103RD ANNUAL REPORT 49 (2016), <https://www.federalreserve.gov/publications/files/2016-annual-report.pdf> [<https://perma.cc/7PYH-9MSX>].

³⁸ Litan, *supra* note 33.

swap which supported collateralized debt obligations,³⁹ fueled the mortgage crisis which in turn brought down the rest of the economy.⁴⁰

Alongside discussions of the purported evils of the financial innovations that contributed to the Financial Crisis are lists of innovations viewed in a more positive light. Famously, in the wake of the Financial Crisis, Paul Volcker identified the automated teller machine (ATM) as the most important innovation in twenty years.⁴¹ Lists of “good” financial innovations also include credit and debit cards, money market funds, indexed mutual funds, credit scoring, adjustable rate mortgages, currency swaps, etc.⁴²

In short, financial innovation itself is nothing new. What has changed in the past two decades, however, is the nature of innovation in this sector⁴³ and the way it is protected, exploited, and enforced. That shift is due not only to technological advances, but to major modifications to our patent system that came about, primarily, as a result of the creation of the United States Court of Appeals for the Federal Circuit.⁴⁴

³⁹ See GILLIAN TETT, *FOOL'S GOLD: HOW THE BOLD DREAM OF A SMALL TRIBE AT J.P. MORGAN WAS CORRUPTED BY WALL STREET GREED AND UNLEASHED A CATASTROPHE* 41–72 (2009). The creation of the credit default swap is generally attributed to Blythe Masters, who was then an executive at J.P. Morgan. *Id.* at 41–57.

⁴⁰ FIN. CRISIS INQUIRY COMM'N, *FINANCIAL CRISIS INQUIRY REPORT* xxiii (2011), <https://www.govinfo.gov/content/pkg/GPO-FCIC/pdf/GPO-FCIC.pdf> [https://perma.cc/XW5E-ZKR3].

⁴¹ Paul Volcker, *The Only Thing Useful Banks Have Invented in 20 Years Is the ATM*, N.Y. POST (Dec. 13, 2009, 6:27 AM), <http://nypost.com/2009/12/13/the-only-thing-useful-banks-have-invented-in-20-years-is-the-atm> [https://perma.cc/Z5QG-HAFZ]. The *New York Times* economist Paul Krugman expressed a similar sentiment; see Paul Krugman, *Money for Nothing*, N.Y. TIMES (Aug. 26, 2009), <https://www.nytimes.com/2009/04/27/opinion/27krugman.html> [https://perma.cc/7FV3-ACDV].

⁴² Litan, *supra* note 33; see also Simon Johnson & James Kwak, *Finance: Before the Next Meltdown*, DEMOCRACY J. (2006), <http://democracyjournal.org/magazine/14/finance-before-the-next-meltdown> [https://perma.cc/7BYQ-WMHN].

⁴³ See *infra* Section IV.A for a discussion on the nature of fintech as a form of financial innovation.

⁴⁴ 28 U.S.C. § 1295 (2015) (jurisdiction of the United States Court of Appeals for the Federal Circuit).

II. FINANCIAL INNOVATION AND THE PATENT SYSTEM

Appropriability is a key consideration for innovators, including financial innovators. Traditionally, financial innovations were protected through trade secrets and first-mover advantages as opposed to through patent protection.⁴⁵ That began to change in the 1980s after Congress established the Federal Circuit as a way to bring uniformity to and strengthen the nation's patent system. Among other things, the Federal Circuit expanded the scope of patentable subject matter to include business methods.⁴⁶ Over the next decade or so, the United States Patent and Trademark Office (PTO) issued thousands of finance-related patents whose owners then sued—or threatened to sue—big banks like Bank of America, Citibank, and J.P. Morgan for infringement.⁴⁷ The banks initially sought relief from the courts arguing that business methods should not be subject to patent protection.⁴⁸ When that effort failed,⁴⁹ banks got the help they needed from Congress.

A. *The Federal Circuit*

Since the dawn of the U.S. patent system in 1790, the country has experienced periods of stronger and weaker patent protection.⁵⁰ Patents helped spur innovation in the late nineteenth century leading to revolutionary inventions such as the light bulb, airplane, and telephone.⁵¹ The attitude toward patenting shifted in the time leading up to the Great Depression as big companies unfairly exploited their patent portfolios in

⁴⁵ For a full discussion of the means for protecting financial innovations, see La Belle & Schooner, *supra* note 23, at 440–42.

⁴⁶ *State St. Bank & Tr. Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368 (Fed. Cir. 1998).

⁴⁷ La Belle & Schooner, *supra* note 23, at 450–55.

⁴⁸ *State St.*, 149 F.3d at 1375.

⁴⁹ *Bilski v. Kappos*, 561 U.S. 593, 611–13 (2010) (business method patents are not categorically excluded under 35 U.S.C. § 101 (2006), which defines what inventions are patentable).

⁵⁰ See, e.g., PETER S. MENELL, MARK A. LEMLEY & ROBERT P. MERGES, *INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE 2017: VOL. I PERSPECTIVES, TRADE SECRETS AND PATENTS* 160 (2017) (“The history of the U.S. patent system in the twentieth century reflects swings between greater and lesser protection.”).

⁵¹ *Id.* at 159.

anti-competitive ways.⁵² During World War II, however, new technologies were invented, ushering in a new era of patent protection that culminated in the passage of major patent reform: the Patent Act of 1952.⁵³ The 1952 Act made patents easier to obtain, and consequently the PTO issued record numbers of patents in the following decade. As the quantity of granted patents increased, the quality decreased, and so the 1960s reached a low-water mark for patent protection, as federal courts invalidated litigated patents more often than not.⁵⁴ Although the overall invalidation rate was high, the chances of success on a validity challenge depended in part on where the suit was filed because patent doctrine varied from circuit to circuit, and some circuits were particularly hostile to patents.⁵⁵

In the early 1980s, policymakers became convinced that this lack of uniformity in patent doctrine, coupled with courts' willingness to cancel patents, was hindering innovation. Congress responded by passing the Federal Courts Improvement Act, pursuant to which the U.S. Court of Appeals for the Federal Circuit was created.⁵⁶ The goal for the Federal Circuit, which was to have exclusive appellate jurisdiction over patent cases, was to promote certainty by making patent doctrine more uniform.⁵⁷ Perhaps by design, the Federal Circuit also heralded a new era of protectionism for patent rights that lasted until Congress enacted the AIA in 2011.

From the start, the Federal Circuit's jurisprudence worked to strengthen patent protection in myriad ways—for example, by making

⁵² See, e.g., Steven P. Reynolds, *Antitrust and Patent Licensing: Cycles of Enforcement and Current Policy*, 37 JURIMETRICS J. 129, 133–34 (1997) (“The 1920s saw the development of large, often international, patent pooling arrangements. Companies entered cross-licensing arrangements with their competitors, limiting entry to those that participated in the arrangement.”).

⁵³ MENELL ET AL., *supra* note 50, at 160.

⁵⁴ *Id.*

⁵⁵ COMM’N ON REVISION OF FED. COURT APPELLATE SYS., STRUCTURE & INTERNAL PROCS.: RECOMMENDATIONS FOR CHANGE 152 (1975) (explaining that patent owners “scramble[d] to get into the 5th, 6th and 7th circuits since the courts there [were] not inhospitable to patents whereas infringers scramble[d] to get anywhere but in th[o]se circuits”).

⁵⁶ Federal Courts Improvement Act of 1982, Pub. L. No. 97-164, 96 Stat. 25 (codified as amended in scattered sections of 28 U.S.C.).

⁵⁷ H.R. REP. NO. 97-312, at 20–22 (1981).

injunctions virtually automatic,⁵⁸ heightening the standard for invalidating patents on obviousness grounds,⁵⁹ reviewing claim construction de novo,⁶⁰ and making it extremely difficult for accused infringers to challenge patents via declaratory judgment actions.⁶¹ Most pertinent to this Article, the Federal Circuit expanded the scope of patentable subject matter under § 101 in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*⁶² In that case, the court held that business methods were patentable, despite long-standing practice of excluding such inventions from § 101.⁶³ Section 101 provides that “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter . . . may obtain a patent therefor”⁶⁴ Business methods, the Federal Circuit reasoned, are “processes” within the meaning of this provision.⁶⁵ Nor did any of the judicially-created exceptions to § 101—i.e., that laws of nature, natural phenomena, and abstract ideas are excluded from patent protection—apply in this case.⁶⁶ Once the Supreme Court denied certiorari and the Federal Circuit reaffirmed its *State Street* holding in *AT&T Corp. v. Excel Communications, Inc.*,⁶⁷ it became clear that the patent landscape was about to change.⁶⁸

The years following *State Street* saw a substantial rise in the number of business method patents granted by the PTO. Where the Patent Office

⁵⁸ *Smith Int'l, Inc. v. Hughes Tool Co.*, 718 F.2d 1573 (Fed. Cir. 1983).

⁵⁹ *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577 (Fed. Cir. 1984), *abrogated* by *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007).

⁶⁰ *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1454–55 (Fed. Cir. 1998) (en banc), *abrogated* by *Teva Pharms., Inc. v. Sandoz, Inc.*, 574 U.S. 318 (2015).

⁶¹ *Gen-Probe Inc. v. Vysis, Inc.*, 359 F.3d 1376 (Fed. Cir. 2004), *abrogated* by *MedImmune, Inc. v. Genentech, Inc.*, 549 U.S. 118 (2007).

⁶² *State St. Bank & Tr. Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368 (Fed. Cir. 1998), *abrogated* by *In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008).

⁶³ *Id.*

⁶⁴ 35 U.S.C. § 101 (2018).

⁶⁵ *State St.*, 149 F.3d at 1373–77.

⁶⁶ *Id.*

⁶⁷ *AT&T Corp. v. Excel Commc'ns, Inc.*, 172 F.3d 1352 (Fed. Cir. 1999), *abrogated* by *In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008).

⁶⁸ See, e.g., John R. Thomas, *The Patenting of the Liberal Professions*, 40 B.C. L. REV. 1139, 1140–41 (1999) (explaining that *State Street* was the latest in a series of cases testing the boundaries of the “useful [a]rts”).

issued 489 of these patents in 1998, that number grew to almost 2,000 a decade later.⁶⁹ As more business method patents were issued, litigation surrounding those patents increased, too. Indeed, for a variety of reasons, business method patents ended up in litigation more frequently than other types of patents.⁷⁰ Thus, major high-tech companies like Microsoft, Google, and Facebook, as well as financial institutions including Bank of America, Wells Fargo, and Citibank, were targets of infringement suits.⁷¹ When attempts to reverse *State Street* were thwarted by the Federal Circuit and Supreme Court,⁷² attention turned to Congress.

B. *Patent Reform*

The increasing litigation surrounding business method patents, together with other factors, ultimately led to a call for patent reform in the mid-2000s.⁷³ Although high-tech companies spearheaded the charge, financial institutions joined the effort to revamp the way patents were issued and enforced.⁷⁴ The banks turned, in particular, to Senators Chuck Schumer and Jeff Sessions for help.⁷⁵ Early versions of the patent reform bill included provisions that would prevent patent owners from collecting damages from banks.⁷⁶ When that proved unworkable, Congress took a different approach to protect financial institutions from the risks associated with patent infringement.

⁶⁹ La Belle & Schooner, *supra* note 23, at 449.

⁷⁰ See, e.g., JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK 213–14 (2009) (detailing how “software patents are particularly prone to litigation and to disputes over patent boundaries”); La Belle & Schooner, *supra* note 23, at 451 (discussing why business method patents are more likely to be challenged).

⁷¹ La Belle & Schooner, *supra* note 23, at 452–55.

⁷² *Bilski v. Kappos*, 561 U.S. 593, 606 (2010) (“Section 101 similarly precludes the broad contention that the term ‘process’ categorically excludes business methods.”).

⁷³ La Belle & Schooner, *supra* note 23, at 459.

⁷⁴ Lisa Lerer, *Finance Industry Leads on Patent Reform*, POLITICO (July 31, 2007, 7:29 PM), <https://www.politico.com/story/2007/07/finance-industry-leads-on-patent-reform-005187> [https://perma.cc/6RZZ-QXG8].

⁷⁵ La Belle & Schooner, *supra* note 23, at 455.

⁷⁶ *Id.*

In 2011, Congress enacted the Leahy-Smith America Invents Act (AIA)—the most comprehensive patent reform legislation since the 1950s.⁷⁷ Among other things, the AIA created a new administrative review body, known as the Patent Trial and Appeal Board (PTAB), to oversee three new types of ex post proceedings: inter partes review (IPR), post-grant review (PGR), and covered business method review (CBM).⁷⁸ These proceedings all permit the PTO, via the PTAB, to take a second look at granted patents. But each comes with various limitations.

With respect to IPR proceedings, any type of patent can be challenged, but the grounds are limited to novelty and non-obviousness.⁷⁹ PGR, by contrast, allows challenges on any ground “relating to invalidity of the patent,” but is only available for recent patents, meaning those issued pursuant to the AIA’s first-to-file system.⁸⁰ Moreover, a PGR petition must be filed within nine months of the issuance of the patent, so the window for PGR challenges is short.⁸¹ Finally, CBM challenges are limited to a certain category of patents—namely, those related to financial services or products—and the CBM program is slated to expire after eight years.⁸² Nevertheless, CBMs are broad in that they can be used to target old or new patents (unlike PGRs), and can be based on any validity ground, including §§ 101 and 112 (unlike IPRs).⁸³

Since the AIA became effective in September 2012, the number of these PTAB petitions filed has greatly exceeded expectations. Of the three, IPR is by far the most popular, with 9,031 between September 16, 2012 and January 31, 2019.⁸⁴ On the other end of the spectrum, only 156

⁷⁷ Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (codified as amended in scattered sections of 35 U.S.C.).

⁷⁸ *Id.* sec. 6(a), § 311, 125 Stat. at 299 (adopting inter partes review); *id.* sec. 6(d), § 321, 125 Stat. at 306 (adopting post-grant review); *id.* sec. 18(a), § 321 note, 125 Stat. at 329 (adopting covered business method review).

⁷⁹ *Id.* sec. 6(a), § 311(b), 125 Stat. at 299.

⁸⁰ *Id.* sec. 6(d), § 321(b), 125 Stat. at 306.

⁸¹ *Id.* sec. 6(d), § 321(c), 125 Stat. at 306.

⁸² *Id.* sec. 18(c), § 321 note, 125 Stat. at 331 (defining “covered business method patents” as a method used in the provision of a financial product or service); *id.* sec. 18(a)(3), § 321 note, 125 Stat. at 330 (articulating the eight-year sunset provision).

⁸³ *Id.* sec. 18(a), § 321 note, 125 Stat. at 330.

⁸⁴ U.S. PAT. & TRADEMARK OFF., TRIAL STATISTICS IPR, PGR, CBM: PATENT TRIAL AND APPEAL BOARD 3 (2019), https://www.uspto.gov/sites/default/files/documents/trial_statistics_jan2019.pdf [<https://perma.cc/UW6P-WQQ8>].

PGR petitions have been filed since the AIA was enacted.⁸⁵ Although this number will likely increase as more first-to-file patents are issued, the nine-month window limits challengers' ability to rely on PGR.⁸⁶ That leaves CBM petitions in the middle with 589 filed as of February 24, 2020.⁸⁷ Though this number is small relative to IPRs, CBMs have played a key role in patent disputes over the past six years.

III. CBM REVIEW

During the patent reform effort, stakeholders expended significant time and energy discussing and debating IPR and PGR. CBM, by contrast, was a late addition to the reform package.⁸⁸ CBM nonetheless became important for two reasons. First, patents could be challenged on § 101 grounds in CBM, unlike IPR. Beginning in 2012, the Supreme Court decided a trilogy of cases—*Mayo Collaborative Services v. Prometheus Laboratories, Inc.*,⁸⁹ *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*,⁹⁰ and *Alice Corp. Pty. Ltd. v. CLS Bank International*⁹¹—that reinvigorated the judicially-created exceptions to § 101 and made it easier than ever to invalidate patents on subject matter grounds in CBM

⁸⁵ *Id.*

⁸⁶ Dennis Crouch, *No Real Consensus Yet on CBM Sunset*, PATENTLY-O (May 15, 2017), <https://patentlyo.com/patent/2017/05/real-consensus-sunset.html> [<https://perma.cc/W4NN-GQ77>].

⁸⁷ U.S. PAT. & TRADEMARK OFF., TRIAL STATISTICS IPR, PGR, CBM: PATENT TRIAL AND APPEAL BOARD 3 (2020), https://www.uspto.gov/sites/default/files/documents/Trial_Statistics_2020_02_29.pdf [<https://perma.cc/EU3J-C7A2>]. These statistics reflect the number of petitions filed rather than the number of distinct patents challenged in CBM proceedings. While concerns have been expressed about serial petitions on the same patent, a recent study shows that most patents challenged in CBM proceedings were challenged only once. See U.S. GOV'T ACCOUNTABILITY OFF., GAO-18-320, ASSESSMENT OF THE COVERED BUS. METHOD PAT. REV. PROGRAM 19–20 (2018) [hereinafter GAO REPORT], <https://www.gao.gov/assets/700/690595.pdf> [<https://perma.cc/MQ5K-UUX4>] (“[A]mong the 359 patents challenged under the CBM program [between Sept. 2012 and Sept. 2017], 73.3 percent were challenged once . . .”).

⁸⁸ See, e.g., Dennis Crouch, *Patent Reform Act of 2011: An Overview*, PATENTLY-O (Feb. 10, 2011), <https://patentlyo.com/patent/2011/02/patent-reform-act-of-2011-an-overview.html> [<https://perma.cc/NU33-88GG>] (showing that, just over six months before the AIA was passed, CBM wasn't even part of the legislation).

⁸⁹ *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66 (2012).

⁹⁰ *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576 (2013).

⁹¹ *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208 (2014).

proceedings and in court.⁹² Second, as discussed in detail below, the PTO, PTAB, and Federal Circuit took, at least initially, an expansive view of section 18 in terms of the types of patents that would be subject to CBM review.

A. Section 18 and CBM Review

Congress provided for CBM review in section 18 of the AIA.⁹³ Section 18 permits parties accused of infringement to challenge patents on any validity ground as long as they are considered “covered business method” patents.⁹⁴ Section 18 goes on to define “covered business method patent” as “a patent that claims a method or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a financial product or service, except that the term does not include patents for technological inventions.”⁹⁵ Section 18 further requires the PTO to promulgate regulations for determining whether a patent falls within that final provision, referred to as the “technological invention exception.”⁹⁶

Early on, CBM proceedings received relatively little attention. While a few critics claimed that section 18 was a “bailout” for the banks,⁹⁷ CBM by far was the least controversial of the three administrative proceedings created by the AIA, with practically no discussion of section 18 in the Senate.⁹⁸ Perhaps this was because Congress believed the term “covered

⁹² Megan M. La Belle, Essay, *Introduction: The Past, Present, and Future of the U.S. Patent System*, 67 CATH. U. L. REV. 605, 612–13 (2018). For a full discussion of the impact that this trilogy of cases has had on § 101 jurisprudence, see generally Paul R. Gugliuzza, *Quick Decisions in Patent Cases*, 106 GEO. L.J. 619 (2018).

⁹³ Because section 18 is temporary and will sunset after eight years, it was not codified in the U.S. Code. However, the provisions of the AIA relevant to CBM are set out in the notes to 35 U.S.C. § 321.

⁹⁴ Leahy-Smith America Invents Act, Pub. L. No. 112-29, sec. 18(a), § 321 note, 125 Stat. 284, 329 (2011) (codified as amended in scattered sections of 35 U.S.C.).

⁹⁵ *Id.* sec. 18(d)(1), § 321 note, 125 Stat. at 331.

⁹⁶ *Id.* sec. 18(d)(2), § 321 note, 125 Stat. at 331.

⁹⁷ See, e.g., Paul Michel, *Rein in the Big Bank Bail Out*, PATENTLY-O (July 7, 2011), <https://patentlyo.com/patent/2011/07/guest-post-rein-in-the-big-bank-bail-out.html> [https://perma.cc/KX2Y-AUDC].

⁹⁸ See La Belle & Schooner, *supra* note 23, at 463–64. There was some debate in the House over CBM, with Representative Shock offering an amendment that would strike section 18 from

business method patent” had been defined narrowly.⁹⁹ Or maybe lawmakers were not overly concerned because of the sunset provision ending the CBM program after eight years.¹⁰⁰ Whatever the initial beliefs about CBM, the PTO soon made clear—first through regulations, and then through PTAB decisions—that it would interpret CBM provisions broadly.¹⁰¹

B. *The PTO’s Interpretation of Section 18*

Shortly after the AIA was enacted, the PTO embarked on a course of rulemaking per Congress’s mandate. In August 2012, the agency promulgated regulations to govern PTAB proceedings, including CBM.¹⁰² For starters, the term “covered business method patent” was defined as “a patent that claims a method or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a financial product or service, except that the term does not include patents for technological inventions.”¹⁰³

On its face, this definition is unhelpful because it simply mirrors the statutory language in section 18 of the AIA. The PTO’s commentary, however, provides additional guidance.¹⁰⁴ For example, the agency rejected a suggestion that “financial product or service” is limited to the financial services industry.¹⁰⁵ Similarly, the agency refused to limit CBM

the bill because he believed it was a bailout for the banks. *Id.* In the end, however, Shock’s amendment was voted down 262–158. *Id.*

⁹⁹ See *infra* Section III.B (regarding CBM proceedings being limited to patents of “financial products or services”).

¹⁰⁰ AIA, sec. 18(a)(3), § 321 note, 125 Stat. at 330.

¹⁰¹ See, e.g., P. Andrew Riley, Jonathan R.K. Stroud & Jeffrey Totten, *The Surprising Breadth of Post-Grant Review for Covered-Business-Method Patents: A New Way to Challenge Patent Claims*, 15 COLUM. SCI. & TECH. L. REV. 235 (2014); Anthony C. Tridico & Rachel L. Emsley, *Covered Business Method Review—Is it Applicable to More Patents Than You Thought?*, CIPA J. (2015), <https://www.finnegan.com/en/insights/articles/covered-business-method-review-is-it-applicable-to-more-patents.html> [https://perma.cc/JD2A-63ZX].

¹⁰² Transitional Program for CBM Patents, 77 Fed. Reg. 48,734 (Aug. 14, 2012) (codified at 37 C.F.R pt. 42).

¹⁰³ 37 C.F.R. § 42.301 (2012).

¹⁰⁴ Transitional Program for CBM Patents, 77 Fed. Reg. at 48,735–36.

¹⁰⁵ *Id.* at 48,736 (response to comment 3).

review to 705 patents.¹⁰⁶ Instead, the agency opined, a broad interpretation of “financial product or services” is supported by the legislative history of section 18—namely, statements by Senator Schumer that CBM patents encompass patents “claiming activities that are financial in nature, incidental to a financial activity or complementary to a financial activity.”¹⁰⁷ Paradoxically, the PTO cites this legislative history as supporting a broad interpretation of “financial product or service” when the language employed by Senator Schumer derives from federal banking law statutes which *limit* permissible activities of banks.¹⁰⁸

Finally, the PTO’s regulations address section 18’s “technological invention exception” to help determine which patents will not be subject to CBM review. Historically speaking, technology was a requirement for patentability, which is why business methods were excluded from patent protection before *State Street*.¹⁰⁹ Even after *State Street*, courts have continued to use technology as a dividing line for those inventions that should be patentable and those that should not.¹¹⁰ Yet the concept of “technology” has always been elusive, so the task of defining the exception

¹⁰⁶ *Id.* (response to comment 5).

¹⁰⁷ *Id.* at 48,735 (response to comment 1).

¹⁰⁸ Senator Schumer explained that CBM patents included those that are “financial in nature, incidental to financial activity or complementary to a financial activity.” 157 CONG. REC. S5432 (daily ed. Sept. 8, 2011) (statement of Sen. Schumer). This financial in nature clause is derived from an important federal banking statute from 1999. 12 U.S.C. § 1843(k). That clause was added to the Bank Holding Company Act, May 9, 1956, c. 240, § 2, 70 Stat. 133 pursuant to the Gramm-Leach-Bliley-Act of 1999 (GLB), Pub. L. No. 106-102, 113 Stat. 1338 (1999) (codified as amended in scattered sections of 12 U.S.C. and 15 U.S.C.). The financial-in-nature clause limits the activities of commercial banks (colloquially, FDIC-insured banks) and their holding companies to financial activities in order to prevent banks and their holding companies from engaging in non-financial commercial activities. This separation of banking from commerce has been a defining feature of the United States’s banking system since the Great Depression. *See generally* Saule T. Omarova, *The Merchants of Wall Street: Banking, Commerce, and Commodities*, 98 MINN. L. REV. 265, 273–77 (2013). Thus, because under federal banking law, the financial in nature clause *limits* a banks’ activities, it is paradoxical that the PTO cites the financial-in-nature clause in support of a *broad* interpretation of CBM.

¹⁰⁹ Jeff Kettle, *Congress Giveth and Taketh Away: A Look at Section 18 of the America Invents Act and the Review of Business Method Patents*, 94 J. PAT. & TRADEMARK OFF. SOC’Y 201, 210–11 (2012).

¹¹⁰ *See Ultramercial, LLC v. Hulu, LLC*, 657 F.3d 1323, 1329 (Fed. Cir. 2011) (stating technological improvements are patentable because they “drive innovation”); *Research Corp. Techs. v. Microsoft Corp.*, 627 F.3d 859, 869 (Fed. Cir. 2010).

was not an easy one for the PTO.¹¹¹ Having considered a plethora of comments from stakeholders, the agency ultimately decided that the question of whether the technological invention exception applies will be made on a case-by-case basis.¹¹² More pointedly, the decision will depend on “whether the claimed subject matter as a whole recites a technological feature that is novel and unobvious over the prior art; and solves a technical problem using a technical solution.”¹¹³

C. *The PTAB’s Treatment of CBM Patents*

Once promulgated, the next question was how the PTO’s regulations would be applied and interpreted by the PTAB. It didn’t take long to find out. On September 16, 2012—the very first day CBM became available—SAP America, Inc. (SAP) petitioned the PTAB to institute a CBM review of U.S. Patent No. 6,553,350 (“‘350 patent”), owned by Versata Development Group, Inc.¹¹⁴ Among other things, SAP argued that the ‘350 patent, entitled “method and apparatus for pricing products in multi-level product and organizational groups,” was invalid under § 101 of the Patent Act.¹¹⁵

Versata initially responded to SAP’s petition by arguing that the ‘350 patent was not directed to a “covered business method patent” and thus not subject to CBM review.¹¹⁶ Even the broadest reasonable definition of “financial services and products,” Versata claimed, would not include the ‘350 patent.¹¹⁷ Versata cited, *inter alia*, federal statutes and regulations

¹¹¹ Kelvin W. Willoughby, *How Much Does Technology Really Matter in Patent Law? A Comparative Analysis of Doctrines of Appropriate Patentable Subject Matter in American and European Patent Law*, 18 FED. CIRCUIT B.J. 63, 67 (2008) (“The typical view seems to be, ‘we cannot define technology, but we all know it when we see it.’”).

¹¹² 37 C.F.R. § 42.301(b) (2012).

¹¹³ *Id.*

¹¹⁴ Petition for Post-Grant Review Under 35 U.S.C. § 321 and § 18 of the Leahy-Smith America Invents Act, SAP Am., Inc. v. Versata Software, Inc., No. CBM2012-00001, 2012 WL 10475693 (P.T.A.B. Sept. 16, 2012).

¹¹⁵ *Id.* SAP also challenged the ‘350 patent under §§ 102 and 112, but the PTAB’s decision ultimately rested on § 101. *See infra* notes 123–25.

¹¹⁶ Patent Owner Versata Dev. Grp, Inc.’s Preliminary Response, SAP Am., Inc. v. Versata Software, Inc., No. CBM2012-00001, 2012 WL 10057302 (P.T.A.B. Nov. 30, 2012).

¹¹⁷ *Id.* at *31–37.

which define “financial product” in support of their narrower interpretation.¹¹⁸ Each of these definitions focuses on banking, securities, and insurance products. The Dodd-Frank Wall Street Reform and Consumer Protection Act defines “financial product” as “a security, an insurance product (including an insurance product that pays a return, whether fixed or variable), a bank product, and a loan product.”¹¹⁹ Federal Trade Commission regulations define “financial product or service” as “any product or service that a financial holding company could offer by engaging in a financial activity under section 4(k) of the Bank Holding Company Act of 1956.”¹²⁰ As discussed above, the Bank Holding Company Act defines activities that are financial in nature as including lending, insuring, and securities activities.¹²¹

In the end, the PTAB rejected Versata’s arguments and concluded that the ‘350 patent is a “covered business method patent” under section 18 because it “claims methods and corresponding apparatus for determining a price, and relates to management of pricing data and is classified in class 705.”¹²² In reaching this conclusion, the PTAB relied heavily on the PTO’s statements that the legislative history of section 18 (specifically, Senator Schumer’s statements) supports a broad definition of “covered business method patent.”¹²³ Although Senator Schumer’s phraseology—“financial in nature, incidental to a financial activity or complementary to a financial activity”—mirrors language from the Bank Holding Company Act, the PTAB refused to limit the definition as Versata urged because such a narrow construction would contradict the legislative history of section 18.¹²⁴ Consequently, the PTAB instituted a

¹¹⁸ *Id.*

¹¹⁹ Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, 124 Stat. 1376, 1942 (2010) (codified at 12 U.S.C. § 5537(a)(2)).

¹²⁰ 16 C.F.R. § 313.3(l)(1) (2012).

¹²¹ 12 U.S.C. § 1843(k)(4) (2010); *see supra* note 108 and accompanying text (identifying the Bank Holding Company Act definition as language meant to limit the activities of banking holding companies).

¹²² SAP Am., Inc. v. Versata Dev. Grp., Inc. No. CBM2012-00001, 2013 WL 5947661, at *9 (P.T.A.B. Jan. 9, 2013).

¹²³ *Id.* at *9–10.

¹²⁴ *Id.*

CBM review of the '350 patent, and subsequently issued a final decision cancelling several claims as unpatentable under § 101.¹²⁵

Thus, the message from the PTO about the scope of CBM review was clear: it should be broad because, in the agency's opinion, that is what Congress intended. Of course, the PTO does not have the final word on all AIA-related matters; instead, Congress granted the Federal Circuit power to review PTAB decisions in certain circumstances.¹²⁶ *Versata*, therefore, raised the question of whether the Federal Circuit would review the PTAB's decision on what constitutes a "covered business method patent" and, if so, whether the court would concur with the PTAB's broad construction.

D. *The Federal Circuit and CBM Review*

1. The Federal Circuit's Early Interpretation of Section 18

Having lost at the PTAB, *Versata* appealed to the Federal Circuit arguing, first, that the administrative tribunal wrongly concluded that the '350 patent was subject to CBM review, and, second, that the PTAB erred on the merits when it invalidated the patent under § 101.¹²⁷ SAP—together with the PTO, which had entered the case as an intervenor¹²⁸—countered that the Federal Circuit lacked the power to consider *Versata*'s first argument because the AIA precludes judicial review of these types of institutional decisions by the PTAB.¹²⁹ Specifically, appellees relied on 35 U.S.C. § 324(e), which provides that "[t]he determination by the Director

¹²⁵ *Id.* at *13–17, *20.

¹²⁶ See Leahy-Smith America Invents Act, Pub. L. No. 112-29, sec. 6(a), § 319, 125 Stat. 284, 304 (2011) (codified as amended in scattered sections of 35 U.S.C.). ("A party dissatisfied with the final written decision of the Patent Trial and Appeal Board . . . may appeal the decision . . ."); *id.* sec. 6(d), § 329, 125 Stat. at 311 ("A party dissatisfied with the final written decision of the Patent Trial and Appeal Board . . . may appeal the decision . . .").

¹²⁷ *Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1313–14 (Fed. Cir. 2015).

¹²⁸ 35 U.S.C. § 143 (2011) ("The Director shall have the right to intervene in an appeal from a decision entered by the Patent Trial and Appeal Board in a . . . post-grant review under chapter 31 or 32.").

¹²⁹ *Versata*, 793 F.3d at 1314–15.

whether to institute a post-grant review under this section shall be final and nonappealable.”¹³⁰

Generally speaking, agency decisions are subject to judicial review. Section 702 of the Administrative Procedure Act (APA) provides that “[a] person suffering legal wrong because of agency action, or adversely affected or aggrieved by agency action within the meaning of a relevant statute, is entitled to judicial review thereof.”¹³¹ What is more, the Supreme Court has interpreted this provision liberally, explaining that section 702 “embodies the basic presumption of judicial review” and “must be given a hospitable interpretation.”¹³² Recently, the Court has taken this a step further, holding that there’s a “strong presumption” in favor of judicial review of administrative decisions, even when interpreting statutes that purport to preclude review.¹³³

Yet, it is well-settled that Congress can and does preclude judicial review of certain agency actions. Not only is this contemplated by the text of the APA,¹³⁴ but the Supreme Court has repeatedly acknowledged Congress’s power to preclude judicial review, both explicitly and implicitly.¹³⁵ Courts have been circumspect, however, when it comes to preclusion of constitutional claims, requiring that there must be clear evidence of Congress’s intent.¹³⁶ Indeed, in every case where the Supreme Court has confronted this question, it has found no clear evidence of

¹³⁰ Section 324(e) and all other provisions related to PGR apply to CBM proceedings unless Congress stated otherwise in section 18. *See* AIA, sec. 18(c), § 321 note, 125 Stat. at 329 (“The transitional proceeding implemented pursuant to this subsection shall be regarded as, and shall employ the standards and procedures of, a post-grant review under chapter 32 of title 35, United States Code, subject to the following.”).

¹³¹ Administrative Procedure Act, Pub. L. No. 79-404, 60 Stat. 237, § 10(a) (1946) (codified as amended at 5 U.S.C. § 702).

¹³² *Abbott Labs. v. Gardner*, 387 U.S. 136, 140–41 (1967) (internal quotations omitted).

¹³³ *Mach Mining, LLC v. E.E.O.C.*, 575 U.S. 480, 486 (2015).

¹³⁴ APA, 5 U.S.C. § 701(a) (2018) (“This chapter applies, according to the provisions thereof, except to the extent that—(1) statutes preclude judicial review; or (2) agency action is committed to agency discretion by law.”).

¹³⁵ *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2140–41 (2016); *see also* *Johnson v. Robison*, 415 U.S. 361, 367 (1974) (discussing how Congress prohibited review of decisions of law or fact that “arise in the administration by the Veterans’ Administration of a statute providing benefits for veterans[]” (emphasis omitted)); *Block v. Cmty. Nutrition Inst.*, 467 U.S. 340 (1984) (finding implicit preclusion based on statutory scheme as a whole).

¹³⁶ *Webster v. Doe*, 486 U.S. 592 (1988).

congressional intent and allowed the constitutional claims to be reviewed.¹³⁷

Turning back to *Versata*, section 324(e) plainly precludes review of “determination[s] by the Director whether to institute a post-grant review”¹³⁸ But what’s not clear is what Congress meant by a “determination . . . whether to institute a post-grant review.”¹³⁹ For IPR, PGR, and CBM, the AIA provides that (1) the challenger files a petition to institute,¹⁴⁰ and (2) the PTO Director may institute the proceeding only if there is a “reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”¹⁴¹ With respect to CBM, moreover, the Act provides that “[t]he Director may institute a transitional proceeding only for a patent that is a covered business method patent.”¹⁴² So the question is whether Congress intended to preclude judicial review of *all* questions related to institution—including, for CBM, if a patent is a “covered business method patent”—or only of the PTO’s decision about the petitioner’s likelihood of prevailing.¹⁴³

¹³⁷ *Bartlett v. Bowen*, 816 F.2d 695, 699 (D.C. Cir. 1987) (“[I]t has become something of a time-honored tradition for the Supreme Court and lower federal courts to find that Congress did not intend to preclude altogether judicial review of constitutional claims in light of the serious due process concerns that such preclusion would raise.”).

¹³⁸ Leahy-Smith America Invents Act, Pub. L. No. 112-29, sec. 6(d), § 324(c), 125 Stat. 284, 307 (codified at 35 U.S.C. § 324(e)) (2011)).

¹³⁹ *Id.*

¹⁴⁰ *See id.* sec. 6(a), § 311(a), 125 Stat. at 299 (“[A] person who is not the owner of a patent may file with the Office a petition to institute an inter partes review of the patent.”); *id.* sec. 6(d), § 321(a), 125 Stat. at 306 (“[A] person who is not the owner of a patent may file with the Office a petition to institute a post-grant review of the patent.”); *id.* sec. 18(a)(1)(B), § 321 note, 125 Stat. at 330 (“A person may not file a petition for a transitional proceeding with respect to a covered business method patent unless the person or the person’s real party in interest or privy has been sued for infringement of the patent or has been charged with infringement under that patent.”).

¹⁴¹ *See id.* sec. 6(a), § 314(a), 125 Stat. at 300 (establishing threshold for institution of IPR review); *id.* sec. 6(d), § 324(a), 125 Stat. at 306 (establishing threshold for institution of PGR and CBM review).

¹⁴² *Id.* sec. 18(a)(1)(E), 125 Stat. at 330.

¹⁴³ The Supreme Court and Federal Circuit have addressed other questions about judicial review of institution-related decisions in IPR cases. *See, e.g.,* *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2131 (2016) (holding that PTAB’s decision to institute IPR because petitioner had a reasonable likelihood of prevailing was not subject to judicial review even after final written decision); *Wi-Fi One, LLC v. Broadcom Corp.*, 878 F.3d 1364 (Fed. Cir. 2018) (en banc) (holding

The *Versata* panel ultimately divided over this question. A majority of the court concluded that, because the PTAB's decision that the '350 patent was a "covered business method patent" did not constitute a "determination . . . whether to institute a post-grant review" under § 324(e), it was subject to judicial review.¹⁴⁴ In so doing, the majority distinguished the decision to institute from the final decision to invalidate a patent, which is reviewable.¹⁴⁵ The court explained that these "distinct agency actions do not become the same just because the agency decides certain issues"—e.g., whether a patent is a "covered business method patent"—at the institution stage rather than the final decision stage of the proceeding.¹⁴⁶ Instead, the majority reasoned, the determination that a patent is a CBM patent "subject[s] it to a special PTAB power to invalidate," rendering it part of the invalidation decision, rather than the institution decision, and therefore subject to judicial review.¹⁴⁷

Once the Federal Circuit decided it had the power to review the PTAB's decision that the '350 patent was a CBM patent, the court had to define the scope of the term "covered business method patent."¹⁴⁸ The court agreed with the PTO that the term should be interpreted broadly to "encompass patents claiming activities that are financial in nature, incidental to a financial activity or complementary to a financial activity."¹⁴⁹ In so doing, the court recognized that Congress delegated rulemaking authority to the PTO "in the establishment and implementation of this transitional post-grant review proceeding," and

that AIA does not preclude judicial review of PTAB's decision to institute IPR proceedings despite one-year time-bar), *rev'd* *Achates Reference Publ'g, Inc. v. Apple, Inc.*, 803 F.3d 652, 658 (Fed. Cir. 2015) (holding that AIA precluded judicial review of PTAB decision on time-bar). Although a full discussion of these cases is beyond the scope of this Article, the Supreme Court's decision in *Cuozzo* is explained further *infra*.

¹⁴⁴ *Versata Dev. Grp. v. SAP Am., Inc.*, 793 F.3d 1306, 1314–23 (Fed. Cir. 2015).

¹⁴⁵ *Id.* at 1319.

¹⁴⁶ *Id.*

¹⁴⁷ *Id.* at 1320–21. Judge Hughes, on the other hand, wrote a lengthy dissent because he believed that the plain language, structure, and purpose of section 324(e) unambiguously precluded judicial review of the PTAB's decision about what qualifies as a "covered business method patent." *Id.* at 1337.

¹⁴⁸ *Id.* at 1323–26.

¹⁴⁹ *Id.* at 1324–25.

thus afforded the agency “substantial deference”—albeit without specifying the type of deference at play.¹⁵⁰

By interpreting “covered business method patent” broadly, the Federal Circuit enabled the use of section 18 proceedings to challenge a wide range of patents.¹⁵¹ To be sure, 589 CBM petitions were filed between September 16, 2012 and February 24, 2020,¹⁵² often on § 101 grounds.¹⁵³ Although financial companies were among those petitioners, technology firms like Apple and Google were the heavy users of CBM review¹⁵⁴ until the Federal Circuit changed course regarding its interpretation of “covered business method patent” in *Unwired Planet, LLC v. Google Inc.*¹⁵⁵ and *Secure Axxess, LLC v. PNC Bank National Ass’n*.¹⁵⁶

¹⁵⁰ *Id.* at 1325–26. The Federal Circuit appears to have been applying either *Chevron* or *Skidmore* deference here. See *United States v. Mead Corp.*, 533 U.S. 218 (2001) (holding that when Congress gives the agency the authority to make decisions carrying the force of law, and the agency acts on that authority, *Chevron* deference applies; otherwise *Skidmore* deference applies). While this undoubtedly is an important distinction, it does not matter for purposes of this paper. All that matters is that the Federal Circuit afforded the agency *some* sort of deference—something that subsequent panels of the Federal Circuit fail to do, as discussed *infra*.

¹⁵¹ The Federal Circuit interpreted “covered business method patent” broadly in several cases other than *Versata*. See, e.g., *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1338 (Fed. Cir. 2016) (affirming the Board’s decision that CBM review is not limited to patent claims tied to the financial sector); *SightSound Techs., LLC v. Apple Inc.*, 809 F.3d 1307, 1315 (Fed. Cir. 2015) (relying on *Versata* to hold that CBM patents are “not limited to products and services of only the financial industry, or to patents owned by or directly affecting activities of financial institutions” (internal quotations omitted)).

¹⁵² See *supra* note 87 and accompanying text.

¹⁵³ See, e.g., Manny Schecter, Shawn Ambwani, Alexander Shei & Robert Jain, *The Effects of Alice on Covered Business Method (CBM) Reviews*, 14 NW. J. TECH. & INTELL. PROP. 381, 385 (2017).

¹⁵⁴ In 2015, Apple and Google, combined, filed forty-one CMBs, twenty-seven percent of all CBMs filed that year. Research on file with authors (source: U.S. PTO Statistics, <https://ptab.uspto.gov/#/external/search> [<https://perma.cc/R8QL-H5Z8>]). In 2018, Apple and Google, combined, filed 5 CMBs, fifteen percent of all CBMs filed that year. *Id.*

¹⁵⁵ *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 1376 (Fed. Cir. 2016).

¹⁵⁶ *Secure Axxess, LLC v. PNC Bank Nat’l Ass’n*, 848 F.3d 1370 (Fed. Cir. 2017).

2. The Federal Circuit's Current Interpretation of Section 18

Just over a year after it decided *Versata*, the Federal Circuit revisited the question of what constitutes a CBM patent and, for reasons that are not clear, came to a different conclusion. In *Unwired Planet*, the patent-in-suit, U.S. Patent No. 7,203,752 (“752 patent”), claims a system of restricting access to the location information of a mobile device.¹⁵⁷ Patent owner Unwired Planet sued Google for patent infringement in 2013, and Google responded by petitioning for CBM review, arguing that various claims of the patent were invalid under various provisions of the Patent Act.¹⁵⁸ As in *Versata*, the PTAB interpreted “covered business method patent” broadly and found that the ‘752 patent fell within that definition because the patent addressed ways to monetize the claimed invention by selling advertising.¹⁵⁹ The PTAB then proceeded to invalidate claims of the ‘752 patent on § 101 grounds.¹⁶⁰

On appeal to the Federal Circuit, the question was how to interpret “covered business method patent” as that term is used in section 18(d)—precisely the question that was decided in *Versata*.¹⁶¹ Like most other federal appellate courts, the Federal Circuit follows the “prior panel rule,” which provides that (1) later panels are bound by the holding of earlier panels, and (2) if panel decisions conflict, the earlier one controls.¹⁶² Indeed, the Federal Circuit’s Local Rules provide that “only the court en banc may overrule a binding precedent . . .”¹⁶³ Thus, the Federal Circuit

¹⁵⁷ *Unwired Planet*, 841 F.3d at 1377.

¹⁵⁸ *Id.* at 1378; Petition for Covered Business Method Patent Review of U.S. Patent No. 7,203,752 under 35 U.S.C. § 321 and § 18 of the Leahy-Smith America Invents Act, Google Inc. v. Unwired Planet, LLC., No. CBM2014-00006, 2013 WL 5740664 (P.T.A.B. Oct. 9, 2013).

¹⁵⁹ *Unwired Planet*, 841 F.3d at 1379–80.

¹⁶⁰ *Id.* at 1378.

¹⁶¹ See *supra* notes 149–51 and accompanying text.

¹⁶² See *Deckers Corp. v. United States*, 752 F.3d 949, 959 (Fed. Cir. 2014) (“In this Circuit, a later panel is bound by the determinations of a prior panel, unless relieved of that obligation by an en banc order of the court or a decision of the Supreme Court.”); see also Daniel Kazhdan, *The Federal Circuit Should Be More Tolerant of Intra-Circuit Splits*, 26 FED. CIR. B.J. 105, 138–39 (2016). Kazhdan argues that the Federal Circuit should relax the prior panel rule to allow intra-circuit splits and facilitate percolation of patent law issues. *Id.* at 146–48. Although recognizing that the Federal Circuit has allowed intra-circuit splits from time-to-time, he claims that there ought to be more splits. *Id.* at 127–38, 147.

¹⁶³ Fed. Cir. R. 35(a) (en banc determination).

should have been bound by *Versata*'s interpretation of "covered business method patent," as the court recognized it was in *SightSound* and *Blue Calypso*.¹⁶⁴ Instead, the *Unwired Planet* court conducted a de novo review of the issue and held that patents claiming activities "incidental to" or "complementary to" financial activities do not qualify as CBM patents.¹⁶⁵

Shortly after *Unwired Planet*, the Federal Circuit decided *Secure Access v. PNC Bank*, another case raising the question of what "covered business method patent" means.¹⁶⁶ In *Secure Access*, the patent owner sued PNC Bank and numerous other financial institutions for infringing U.S. Patent No. 7,631,191 ("191 patent"), which claims a system and method for authenticating a web page.¹⁶⁷ The PTAB concluded, as it had before, that the '191 patent was subject to CBM review because the patented invention performs operations that are "incidental to a financial activity."¹⁶⁸ After the Board invalidated certain claims of the '191 patent, *Secure Access* appealed, and the Federal Circuit reversed.¹⁶⁹ To justify reversal, the court claimed it could ignore *Versata* because the panel in that case did not "opine about where the boundaries of the CBM definition lay."¹⁷⁰ Similar to *Unwired Planet*, the *Secure Access* court then went on to hold that defining CBM patents to encompass patents that are "incidental to" or "complementary to" financial activity is beyond the scope of the statutory language, and thus improper.¹⁷¹ Judge Lourie disagreed with this narrow interpretation of CBM patent and wrote a dissenting opinion.¹⁷² And when the court subsequently denied the petition for rehearing en banc, it was once again Judge Lourie (joined by Judges Prost, Dyk, Wallach, and Hughes) dissenting because the *Secure Access* decision was "contrary to the statutory language, congressional intent, and our case law."¹⁷³

¹⁶⁴ See *supra* note 151 and accompanying text.

¹⁶⁵ *Unwired Planet*, 841 F.3d at 1379, 1382.

¹⁶⁶ *Secure Access, LLC v. PNC Bank Nat'l Ass'n*, 848 F.3d 1370 (Fed. Cir. 2017).

¹⁶⁷ *Id.* at 1373, 1381.

¹⁶⁸ *Id.* at 1380–81.

¹⁶⁹ *Id.*

¹⁷⁰ *Id.* at 1380.

¹⁷¹ *Id.* at 1380–81.

¹⁷² *Id.* at 1382–86.

¹⁷³ *Secure Access, LLC v. PNC Bank Nat'l Ass'n*, 859 F.3d 998, 1004 (Fed. Cir. 2017).

Why the Federal Circuit came to a different conclusion in *Unwired Planet* and *Secure Axcess* than it had barely a year earlier in *Versata* is impossible to know for sure. The most obvious explanation is that the divergent outcomes are simply a result of a difference in panel compositions; yet, there was actually some overlap in the panels, with Judge Plager serving on all three.¹⁷⁴ Perhaps a better explanation is that the court was more inclined to agree with the PTAB in *Versata* because the PTO had intervened in the suit and was a party before the court, which was not the situation in *Unwired Planet* or *Secure Axcess*.¹⁷⁵ Or maybe the difference is timing: *Versata* was decided under the Obama administration, which tended to promote policies facilitating patent challenges, while *Unwired Planet* and *Secure Axcess* were decided after President Trump was elected, when patent policy was expected to turn in a pro-patent owner direction.¹⁷⁶ Whatever the reason, the reality is that by ignoring Federal Circuit precedent and affording zero deference to the PTO's interpretation of "covered business method patent,"¹⁷⁷ *Unwired Planet* and *Secure Axcess* narrowed the scope of CBM review.

¹⁷⁴ The *Versata* panel included Judges Newman, Plager, and Hughes; the *Unwired Planet* panel included Judges Reyna, Plager, and Hughes; and the *Secure Axcess* panel included Judges Lourie, Plager, and Taranto. *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 1376 (Fed. Cir. 2016); *Versata Dev. Grp., v. SAP Am., Inc.*, 793 F.3d 1306 (Fed. Cir. 2015).

¹⁷⁵ *Versata*, 793 F.3d at 1315.

¹⁷⁶ See La Belle, *supra* note 92, at 617.

¹⁷⁷ The Federal Circuit has recognized, including in *Unwired Planet*, that Congress granted the PTO a "broad delegation of rulemaking authority in the establishment and implementation of CBM review." *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 1376, 1380 (Fed. Cir. 2016) (internal quotations omitted) (quoting *Versata*, 793 F.3d at 1325). Under *Chevron U.S.A., Inc. v. Nat. Res. Def. Council*, 467 U.S. 837, 842–43 (1984), and its progeny—including the Supreme Court's recent decision in *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131 (2016), interpreting a different provision of the AIA—where an agency has such authority and the statute "leaves a gap or is ambiguous," the agency has "leeway to enact rules that are reasonable in light of the text, nature, and purpose of the statute." *Cuozzo*, 136 S. Ct. at 2142 (internal quotations omitted). Yet, neither *Unwired Planet* nor *Secure Axcess* discusses *Chevron* deference. While *Unwired Planet* includes some *Chevron*-like language, see, e.g., 841 F.3d at 1381 ("General policy statements, however, are not legally binding and, without adopting a policy as a rule through rulemaking an agency cannot apply or rely upon a general statement of policy as law.") (internal quotations omitted), *Secure Axcess* applied a wholly different standard. *Secure Axcess*, 848 F.3d at 1377 ("[T]he issue here is whether the Board properly understood the scope of the statutory definition. That is a question of law."). The Federal Circuit's application of *Chevron* and its progeny in this line of cases and more generally undoubtedly warrants further study, but that is beyond the scope of this Article.

In May 2018, the Supreme Court vacated *Secure Access* as moot because the patents were also canceled in a separate IPR proceeding, leaving no live case or controversy between the parties.¹⁷⁸ *Unwired Planet*, on the other hand, remains good law and has been followed in some PTAB and Federal Circuit cases to deny institution of CBM proceedings.¹⁷⁹ That leaves us with *Versata*, *SightSound*, and *Blue Calypso* supporting a broad interpretation of section 18's "financial product and service" limitation, whereas *Unwired Planet* finds that a much narrower interpretation is appropriate. Thus, the meaning of this provision remains unclear.¹⁸⁰ But because CBM is set to sunset next year, this question may be left unresolved.

E. *The Future of CBM*

From the start, Congress intended for CBM review—unlike the other post-grant proceedings—to be temporary.¹⁸¹ The idea was that many bad business method patents were issued in the late 1990s after the Federal Circuit decided *State Street* because too few PTO examiners had the requisite expertise to conduct proper prior art searches.¹⁸² Congress believed that eight years was sufficient to allow any patents that were improperly granted during that time period to be challenged. After

¹⁷⁸ PNC Bank Nat'l Ass'n v. Secure Access, LLC, 138 S. Ct. 1982 (2018), *vacating as moot* *Secure Access*, 848 F.3d 1370.

¹⁷⁹ See, e.g., *Apple Inc. v. ContentGuard Holdings, Inc.*, 740 F. App'x 714, 717 (Fed. Cir. 2018) (vacating PTAB's decision to institute CBM review because "the mere possibility that a patent can be used in financial transactions is not enough to make it a CBM patent"); *Xerox Corp. v. Bytemark, Inc.*, No. CBM2018-00018, 2018 WL 3414464, at *1 (P.T.A.B. July 12, 2018) (relying on *Unwired Planet* to deny institution because patent does not fall within definition of CBM patent); Dennis Crouch, *Supreme Court Vacates Secure Access Precedent—Finding It Moot*, PATENTLY-O (May 14, 2018), <https://patentlyo.com/patent/2018/05/supreme-vacates-precedent.html> [<https://perma.cc/C4QB-P49M>] ("This means that the 'financial services' limitation of the covered-business-method provisions are again up for interpretation.").

¹⁸⁰ See Crouch, *supra* note 179.

¹⁸¹ AIA, sec. 18(a)(3), § 321 note, 125 Stat. at 330.

¹⁸² GAO REPORT, *supra* note 87, at 11 n.33.

September 2020, when the CBM program is slated to sunset, any remaining patents issued in the late 1990s will have expired.¹⁸³

Nevertheless, almost immediately after the AIA became effective, speculation arose that Congress might extend the CBM program beyond September 2020 or perhaps even make it permanent.¹⁸⁴ Proponents of expanding the CBM program argue that it fills an important void by allowing patents to be challenged on any ground, including §§ 101 and 112, setting it apart from IPRs where only §§ 102 and 103 issues can be raised.¹⁸⁵ What is more, “old patents” can be challenged in CBM proceedings making it much more useful than PGR, which applies only to patents granted after the AIA.¹⁸⁶

In May 2013, less than a year after the AIA became effective, Senator Schumer proposed legislation to expand the CBM program.¹⁸⁷ Senator Schumer’s proposal, which ultimately died in committee, not only made the CBM program permanent but expanded its scope beyond financial patents.¹⁸⁸ Perhaps the bill died because, just a couple of months after Senator Schumer proposed it, the PTAB interpreted the scope of the term “covered business method patent” broadly in *Versata*, thus rendering legislative action unnecessary.¹⁸⁹ To be sure, in the wake of the PTAB’s *Versata* decision, the number of CBM petitions peaked with 177 filed in 2014, followed by 151 in 2015, and 92 in 2016.¹⁹⁰

¹⁸³ See 35 U.S.C. § 154(a)(2) (providing that the term of a patent “begin[s] on the date on which the patent issues and end[s] 20 years from the date on which the application for the patent was filed in the United States . . .”).

¹⁸⁴ See, e.g., Tony Dutra, *Schumer Seeks Expanded, Challenges to CBM Patents, Invokes Troll Specter*, BLOOMBERG NEWS (May 7, 2013, 12:00 AM), https://www.bloomberglaw.com/product/blaw/document/XEM8JCQO000000?criteria_id=4608904ee3804d74ba7692821b741864&searchGuid=4b70c65f-c0d6-4695-8323-7ad423b53801 [<https://perma.cc/AC5J-J7XX>].

¹⁸⁵ See, e.g., Jeffrey C. Totten & Jonathan R.K. Stroud, *Senate Bill Proposes Expansion of Post-Grant Review of Business Methods*, FINNEGAN AIA BLOG (May 15, 2013), <https://www.finnegan.com/en/insights/blogs/america-invents-act/senate-bill-proposes-expansion-of-post-grant-review-of-business-methods.html> [<https://perma.cc/5V9S-QSYP>].

¹⁸⁶ GAO REPORT, *supra* note 87, at 40.

¹⁸⁷ Patent Quality Improvement Act of 2013, S. 866, 113th Cong. (2013).

¹⁸⁸ *Id.* § 2.

¹⁸⁹ See *supra* notes 123–25.

¹⁹⁰ Research on file with authors (source: U.S. PTO Statistics, <https://ptab.uspto.gov/#/external/search> [<https://perma.cc/R8QL-H5Z8>]).

The number of CBM petitions began to taper off significantly in 2017, with only 52 petitions, and that downward trend continued in 2018 when only 33 CBM petitions were filed and again in 2019 with only 21 CBM petitions.¹⁹¹ Various explanations have been offered for this decline. Some point to the Federal Circuit's decisions in *Unwired Planet* and *Secure Axcess*, which, as discussed above, substantially narrowed the category of patents subject to CBM review.¹⁹² Others argue that CBM review has accomplished its goal, meaning the bad business method patents issued post-*State Street* have been canceled.¹⁹³ Still others postulate that owners of financial patents are making a strategic decision to wait until after the CBM program expires to enforce their patents.¹⁹⁴ Finally, in light of recent developments making it more difficult to challenge patents on § 101 grounds,¹⁹⁵ perhaps challengers are relying more on IPR to challenge patents under §§ 102 and 103.

Despite these dwindling numbers, Congress held hearings in March 2018 to consider whether it should extend or make permanent the CBM program.¹⁹⁶ The witnesses included Aaron Cooper, Vice President of Global Policy at BSA/The Software Alliance; David Hale, Chief Privacy Officer and Deputy General Counsel at TD Ameritrade; and John Neumann, Director of Natural Resources and Environment at the U.S. Government Accountability Office (GAO).¹⁹⁷ Not unexpectedly, BSA opposes any extension of the CBM program because Congress intended it to be transitional, its objective has been accomplished, and the program "puts a cloud over patents on software-related inventions."¹⁹⁸ TD Ameritrade, on the other hand, supports making the CBM program permanent because IPR and PGR are not viable alternatives for

¹⁹¹ *Id.*

¹⁹² GAO REPORT, *supra* note 87, at 18.

¹⁹³ *Id.*

¹⁹⁴ *Id.* at 19.

¹⁹⁵ See *infra* Section V.B (discussing recent developments on § 101).

¹⁹⁶ *Assessing the Effectiveness of the Transitional Program for Covered Business Method Patents: Hearing Before the Subcomm. on Courts, Intell. Prop., and the Internet of the Comm. on the Judiciary*, 105th Cong. (2018).

¹⁹⁷ *Id.*

¹⁹⁸ *Id.* at 9 (statement of Aaron Cooper); BSA, HEARING ON "ASSESSING THE EFFECTIVENESS OF THE TRANSITIONAL PROGRAM FOR COVERED BUSINESS METHOD PATENTS" 6 (2018), <https://docs.house.gov/meetings/JU/JU03/20180320/108034/HHRG-115-JU03-Wstate-CooperA-20180320.pdf> [<https://perma.cc/U5QN-7V28>].

challenging the bad business method patents.¹⁹⁹ Yet, it is the testimony of the GAO Director that likely had the most sway with Congress.

Shortly before the hearings, the GAO produced a report assessing the CBM program based on PTAB trial data from September 2012 through September 2017, various PTO documents, and interviews with almost forty stakeholders, including patent owners, patent challengers, attorneys appearing before the PTAB, technology trade groups, public interest groups, legal and academic commentators, and venture capitalists.²⁰⁰ The report reached a number of key conclusions, including, but not limited to, the following: (1) of the 300 or so patents challenged through CBM, in one-third of the cases, at least one of the claims was invalidated;²⁰¹ (2) use of CBM declined over time; and (3) stakeholders generally agree that CBM proceedings have contributed to a decrease in litigation involving business method patents and that some aspects of the program should be maintained past 2020.²⁰² In the end, however, the GAO did not recommend making the CBM program permanent or extending it in any way.²⁰³ This is not particularly surprising since, at least as early as 2015, the PTO recommended that Congress allow the CBM program to expire as scheduled.²⁰⁴

The GAO Report does not focus on *who* the petitioners have been in CBM proceedings. When it was proposed and initially adopted, the CBM program was seen as a “bailout” for the banks.²⁰⁵ One therefore would expect financial institutions to be heavy users of CBM proceedings. To test this hypothesis, we examined all 589 of the section 18 proceedings

¹⁹⁹ See *supra* note 196, at 7–9 (statement of David Hale).

²⁰⁰ GAO REPORT, *supra* note 87, at 4.

²⁰¹ *Id.* at 23; see also *id.* at 19–20 (discussing the fact that the number of petitions filed is not necessarily equal to the number of patents subject to challenge).

²⁰² GAO Report, *supra* note 87, at 17, 34.

²⁰³ *Id.* at 42 (stating that the only recommendation is that the PTO develop guidance for judges reviewing PTAB decisions and processes that lead to the decisions).

²⁰⁴ U.S. PAT. & TRADEMARK OFF., STUDY AND REPORT ON THE IMPLEMENTATION OF THE LEAHY-SMITH AMERICA INVENTS ACT 39 (2015), https://www.uspto.gov/sites/default/files/documents/Report_on_Implementation_of_the_AIA_September2015.pdf [https://perma.cc/BSQ3-E997].

²⁰⁵ See Michel, *supra* note 97.

from September 2012 through the first quarter of 2020 to determine the extent of financial institutions' involvement in the CBM program.²⁰⁶

An examination of CBMs involving all financial services firms²⁰⁷ does not reveal commanding numbers. During the period we studied, financial services firms were petitioners in a total of 118 CBMs, representing 20% of all CBMs. Of those 118, banks were petitioners in 45, or 7% of all CBMs. Contrast these numbers with those of technology companies: Apple alone filed more CBMs—54—than all the banks put together. Google alone filed 44 CBMs.

While these numbers do not appear significant, examination of CBMs may implicate some changes in intra-industry litigation practices. As discussed, it comes as no surprise that financial services firms would take advantage of CBM proceedings as petitioners. Furthermore, it is not surprising that generally the respondents in such proceedings are not financial institutions.²⁰⁸ What is most surprising is that there are a handful of CBMs against financial services firms. This is surprising given that historically banks and other financial services firms did not patent their innovations and therefore did not have patents to protect in litigation. This also suggests that the uptick in patent activity that we observed in our 2014 study may involve more than defensive patenting.²⁰⁹

In all of the CBMs in which a financial services firm is a respondent, the petitioner is also a financial services firm. International Securities Exchange, LLC was petitioner in several CBMs in which Chicago Board Option Exchange was respondent.²¹⁰ Liberty Mutual Insurance Co. was petitioner in several CBMs in which Progressive Casualty Insurance Co.

²⁰⁶ Research on file with authors (source: U.S. PTO Statistics, <https://ptab.uspto.gov/#/external/search> [<https://perma.cc/R8QL-H5Z8>]).

²⁰⁷ Our statistics regarding all financial services firms should be regarded as estimates only because we had to exercise significant discretion in deciding whether a firm (particularly those that are privately held) is engaged in financial services.

²⁰⁸ Since CBM was supposed to address the "patent troll" problem for banks, one would expect most respondents to be non-practicing entities (NPEs).

²⁰⁹ *La Belle & Schooner*, *supra* note 23, at 442.

²¹⁰ *Int'l Sec. Exch., LLC, v. Chi. Bd. Options Exch., Inc.*, No. CBM2013-00049, 2015 WL 930203 (P.T.A.B. Mar. 2, 2015); *Int'l Sec. Exch., LLC, v. Chi. Bd. Options Exch., Inc.*, No. CBM2013-00050, 2015 WL 930204 (P.T.A.B. Mar. 2, 2015); *Int'l Sec. Exch., LLC, v. Chi. Bd. Options Exch., Inc.*, No. CBM2013-00051, 2015 WL 930205 (P.T.A.B. Mar. 2, 2015).

was respondent.²¹¹ The Federal Reserve Bank of Atlanta filed CBMs against Bozeman Financial LLC.²¹² Both Miami International Holdings and Investors Exchange filed a number of CBMs against NASDAQ.²¹³

Most important for purposes of our study of banks' patent activities, in the first quarter of 2019, Wells Fargo filed CBMs against USAA.²¹⁴ These CBMs arise out of the first bank-on-bank patent litigation which is discussed in detail in Part V.

²¹¹ Liberty Mut. Ins. Co. v. Progressive Cas. Ins. Co., No. CBM2012-00003, 2014 WL 651401 (P.T.A.B. Feb. 11, 2014); Liberty Mut. Ins. Co. v. Progressive Cas. Ins. Co., No. CBM2012-00004, 2014 WL 2213411 (P.T.A.B. Jan. 23, 2014); Liberty Mut. Ins. Co. v. Progressive Cas. Ins. Co., No. CBM2012-00002, 2014 WL 1260851 (P.T.A.B. Jan. 23, 2014); Liberty Mut. Ins. Co. v. Progressive Cas. Ins. Co., No. CBM2013-00001 (P.T.A.B. Feb. 27, 2013); Liberty Mut. Ins. Co. v. Progressive Cas. Ins. Co., No. CBM2012-00011 (P.T.A.B. Feb. 25, 2013).

²¹² Fed. Reserve Bank of Atlanta v. Bozeman Fin. LLC, No. CBM2017-00035, 2018 WL 3571111 (P.T.A.B. July 23, 2018); Fed. Reserve Bank of Atlanta v. Bozeman Fin. LLC, No. CBM2017-00036, 2018 WL 3570874 (P.T.A.B. July 23, 2018).

²¹³ Miami Int'l Holdings, Inc. v. Ften, Inc., No. CBM2018-00020, 2019 WL 5092479 (P.T.A.B. Oct. 10, 2019); Miami Int'l Holdings, Inc. v. Nasdaq, Inc., No. CBM2018-00029, 2019 WL 5070457 (P.T.A.B. Oct. 9, 2019); Miami Int'l Holdings, Inc. v. Nasdaq, Inc., No. CBM2018-00030, 2019 WL 4896642 (P.T.A.B. Oct. 3, 2019); Miami Int'l Holdings, Inc. v. Nasdaq, Inc., No. CBM2018-00031, 2019 WL 4855509 (P.T.A.B. Oct. 1, 2019); Miami Int'l Holdings, Inc. v. Nasdaq, Inc., No. CBM2018-00021, 2019 WL 4855629 (P.T.A.B. Oct. 1, 2019); Miami Int'l Holdings, Inc. v. Nasdaq, Inc., No. CBM2018-00032, 2019 WL 5993350 (P.T.A.B. Nov. 14, 2018); Miami Int'l Holdings, Inc. v. Nasdaq, Inc., No. CBM2018-00028 (Aug. 5, 2018); Inv'rs Exch. LLC v. Nasdaq, Inc., No. CBM2018-00045, CBM2019-00001, 2020 WL 1696147 (P.T.A.B. Apr. 7, 2020); Inv'rs Exch. LLC v. Nasdaq, Inc., No. CBM2018-00039, 2020 WL 907811 (P.T.A.B. Feb. 25, 2020); Inv'rs Exch. LLC v. Nasdaq, Inc., No. CBM2018-00042, 2019 WL 1294135 (P.T.A.B. Mar. 18, 2019); Inv'rs Exch. LLC v. Nasdaq, Inc., No. CBM2018-00041, 2019 WL 413635 (P.T.A.B. Jan. 31, 2019); Inv'rs Exch. LLC v. Nasdaq, Inc., No. CBM2018-00038, 2019 WL 323691 (P.T.A.B. Jan. 22, 2019).

²¹⁴ Wells Fargo Bank v. United Servs. Auto. Ass'n, No. CBM2019-00027, 2019 WL 4855511 (P.T.A.B. Oct. 1, 2019); Wells Fargo Bank v. United Servs. Auto. Ass'n, No. CBM2019-00029, 2019 WL 4855342 (P.T.A.B. Oct. 1, 2019); Wells Fargo Bank v. United Servs. Auto. Ass'n, No. CBM2019-00028, 2019 WL 4855339 (P.T.A.B. Oct. 1, 2019); Wells Fargo Bank v. United Servs. Auto. Ass'n, No. CBM2019-00003 (P.T.A.B. June 3, 2019); Wells Fargo Bank v. United Servs. Auto. Ass'n, No. CBM2019-00005, 2019 WL 2361775 (P.T.A.B. June 3, 2019); Wells Fargo Bank v. United Servs. Auto. Ass'n, No. CBM2019-00004 (P.T.A.B. May 15, 2019); Wells Fargo Bank v. United Servs. Auto. Ass'n, No. CBM2019-00002 (P.T.A.B. Apr. 26, 2019).

IV. THE RISE OF FINTECH AND FINTECH PATENTS

After a long period in which the world of finance tended to thrive outside the world of patents and patent litigation, we see a change in the landscape deriving from two simultaneous trends. First is the rise in fintech as the latest form of financial innovation. The growing emphasis on high technology as the driver of financial innovation has brought new players into financial services. Jamie Dimon, CEO of JP Morgan Chase, famously told his shareholders in 2015, “Silicon Valley is coming.”²¹⁵ With Silicon Valley comes greater reliance on and sophistication with the patent system. These developments are discussed in Part IV. Second is a change in patent litigation. We see some initial signs of a shift in patent litigation involving financial products, a move away from third-party suits toward litigation between competitors, i.e., bank-on-bank litigation in CBM and in federal court. The changes in patent litigation are the topic of Part V.

A. *Rise of Fintech*

The Financial Stability Board (FSB)²¹⁶ defines fintech “as technologically enabled innovation in financial services that could result in new business models, applications, processes or products with an associated material effect on financial markets and institutions and the provision of financial services.”²¹⁷ The following discussion examines how fintech relates to the historical landscape of financial innovation and how fintech is transforming financial services.

As discussed in Part I, innovation has a long and significant history in the development of the financial services industry. Traditional definitions of financial innovation focus on newness coupled with

²¹⁵ Alyson Shontell, *Jamie Dimon: Silicon Valley Startups are Coming to Eat Wall Street's Lunch*, BUS. INSIDER (Apr. 10, 2015, 9:02 AM), <https://www.businessinsider.com/jamie-dimon-shareholder-letter-and-silicon-valley-2015-4> [<https://perma.cc/7NQH-WCS5>].

²¹⁶ See *infra* note 244 (defining Financial Stability Board).

²¹⁷ *Monitoring of FinTech*, FIN. STABILITY BD., <https://www.fsb.org/work-of-the-fsb/policy-development/additional-policy-areas/monitoring-of-fintech> [<https://perma.cc/9L3H-ZCNB>].

widespread adoption²¹⁸ and on cost savings and risk reduction.²¹⁹ To be sure, fintech can be seen as a type of traditional financial innovation, i.e., financial innovation that is technology-driven. Seen this way, as a subset of a broader category of financial innovation, fintech can be distinguished from other important financial product innovations. For example, the creation of the credit default swap (CDS)²²⁰ was supported, but certainly not driven, by technology. Rather, a CDS is an insurance-like contractual innovation that falls squarely within the traditional definitions of financial innovation because of its newness, widespread adoption, and potential for cost savings and risk reduction.²²¹ On the other hand, other important historical financial innovations have been driven by technological advances. The automatic teller machine (ATM), for example, was a technological innovation that transformed retail banking.²²²

Was the ATM a fintech innovation in its time? Using the FSB definition of fintech,²²³ the ATM was certainly a technological innovation that had a material effect on the provision of financial services.²²⁴ Still, some might reject the idea of the ATM as a form of fintech because in their view fintech is a form of financial innovation that disrupts existing financial services and is fueled by innovators who are new to the financial

²¹⁸ See *supra* Part I (discussing often cited definition developed by Peter Tufano).

²¹⁹ See *supra* Part I (discussing often cited definition developed by W. Scott Frame and Lawrence White).

²²⁰ See *supra* Part I (discussing the creation of the credit default swap).

²²¹ Of course, the CDS earned its infamy for enhancing risk during the Financial Crisis. For a discussion of recent CDS developments, see Gina-Gail S. Fletcher, *Engineered Credit Default Swaps: Innovative or Manipulative?*, 94 N.Y.U. L. REV. 1073 (2019).

²²² See Bernardo Bátiz-Lazo, *A Brief History of the ATM*, ATLANTIC (Mar. 26, 2015), <https://www.theatlantic.com/technology/archive/2015/03/a-brief-history-of-the-atm/388547> [<https://perma.cc/XS6Q-KQES>] (examining the impact of the ATM on retail banking).

²²³ See *supra* note 217 and accompanying text.

²²⁴ John Schindler, an economist at the Federal Reserve, writes that the advantage of the FSB definition is that “it captures only technology-enabled financial innovation with a ‘material effect’ on financial markets, institutions, and services—minor uses of technology are not counted.” John Schindler, *FinTech and Financial Innovation: Drives and Depth 2* (Fin. and Econ. Discussion Series Div. of Res. & Stat. & Monetary Aff., Working Paper No. 2017-081), <https://www.federalreserve.gov/econres/feds/files/2017081pap.pdf> [<https://perma.cc/J4QR-VDHY>].

sector.²²⁵ The invention of the ATM does not fit neatly within this narrower vision since so many lay claim to the title of the ATM inventor (making it difficult to pinpoint the source),²²⁶ and, in any event, the invention was not disruptive to the banking business model.²²⁷ Finally, some critics would simply reject the questions regarding the nature of fintech because they view fintech as little more than a branding opportunity targeted at the millennial demographic.²²⁸

Putting ATM analogies aside (with more on the ATM later)²²⁹ most observers, like the FSB, adopt a broad meaning for fintech and seem to direct attention to the newness and significance of the technology or application.²³⁰ Therefore, fintech innovations are identified across all sectors of finance.²³¹ In credit markets, for example, marketplace lenders (e.g., LendingClub, Kabbage, Amazon Lending) use online platforms to lend, directly or indirectly, to consumers and small businesses. Peer-to-peer lending platforms (e.g., Upstart, Funding Circle) connect borrowers with lenders, eliminating the services of traditional banks or financial

²²⁵ Maurizio Raffone, *Financial Innovation vs FinTech*, MEDIUM (Jan. 1, 2018), <https://medium.com/@maurizio.raffone/financial-innovation-vs-fintech-fcd8f54d4aa6> [https://perma.cc/YBY6-YM5U].

²²⁶ See Anthony Miller, *Who Invented the ATM? Part 1*, ATM INVENTOR (2011), <http://atminventor.com> [https://perma.cc/6HFB-S6DF].

²²⁷ For background on the development of the ATM, see Linda Rodriguez McRobbie, *The ATM is Dead. Long. Live the ATM!*, SMITHSONIAN MAG. (Jan. 8, 2015), <https://www.smithsonianmag.com/history/atm-dead-long-live-atm-180953838> [https://perma.cc/7FK5-7R57].

²²⁸ Jemima Kelly of *The Financial Times* has made this point in several articles. Jemima Kelly, *Is the Fintech Bubble Bursting?* FIN. TIMES (Dec. 3, 2019), <http://ftalphaville.ft.com/2019/11/29/1575025278000/Is-the-fintech-bubble-bursting> [https://perma.cc/APW7-FG66]; Jemima Kelly, *Can We Please Stop Adding “Tech” to Stuff?* FIN. TIMES (Aug. 2, 2019), <http://ftalphaville.ft.com/2019/08/02/1564735232000/Can-we-please-stop-adding—tech—to-stuff>. [https://perma.cc/L5YG-Q46G]. Kelly points out the absurdity of fintech relative terms such as “regtech” (technology that addresses financial regulation), and “suptech” (technology that supports supervisory agencies). *Id.*

²²⁹ See *infra* Section IV.B (discussing fintech patents).

²³⁰ Schindler argues that a feature of many fintech innovations is the “depth of innovation,” which he defines as a greater ability of the innovation to transform financial services. See Schindler, *supra* note 224, at 7–10.

²³¹ For a discussion of fintech developments, see BANK FOR INT’L SETTLEMENTS, BASEL COMM. ON BANKING SUPERVISION SOUND PRACTICES: IMPLICATIONS OF FINTECH DEVELOPMENTS FOR BANKS AND BANK SUPERVISORS 4–5 (2018), <https://www.bis.org/bcbs/publ/d431.pdf> [https://perma.cc/J8K2-8YMY].

institutions. Payment services have been transformed by mobile wallets (e.g., Apple Pay, Google Pay, PayPal) and peer-to-peer transfers (e.g., Venmo, Square, Zelle). Investment management services have embraced innovations like digital wealth management platforms (e.g., Folio, SigFig) that use algorithms to provide customers with investment and financial advice.²³² In addition to fintech innovations that directly impact banking and other financial services, many new technologies with non-financial applications have important implications for financial services. Cloud computing, distributed ledger technology, artificial intelligence, and even IoT are transforming finance.

A diverse set of firms make up the world of fintech, each having relative strengths and weaknesses. Large technology companies (e.g., Apple, Google) and big banks (e.g., JP Morgan, Bank of America) are obvious major players given the resources they control. Large tech firms, moreover, benefit from their existing expertise in development and culture of innovation. Banks, on the other hand, have significant regulatory advantages. For example, only chartered banks can offer deposit accounts,²³³ which gives banks a natural advantage in many financial services, particularly those involving payment systems. In addition, banks (particularly federally chartered banks) are also unhindered by thorny compliance issues arising from operations across fifty states.²³⁴

Looking beyond large institutions, fintech startups have been most widely seen as the key disruptors. Certainly, over the last ten years, the growth of fintech startups has been significant. A Deloitte study shows, however, that the number of new fintech startups is decreasing, after seeing its peak in 2014.²³⁵ On the banking side, small community banks certainly lack the resources to compete with large banks, but many community banks are riding the technology wave by partnering with

²³² See, e.g., DIV. INV. MGMT., U.S. SEC. & EXCH. COMM'N, IM GUIDANCE UPDATE (No. 2017-02, 2017), <https://www.sec.gov/investment/im-guidance-2017-02.pdf> [<https://perma.cc/784N-MJH5>] (SEC-issued advice on robo-advisors).

²³³ 12 U.S.C. § 1813(l)(1) (2018).

²³⁴ See generally Brian Knight, *Federalism and Federalization on the Fintech Frontier*, 20 VAND. J. ENT. & TECH. L. 129 (2017).

²³⁵ DELOITTE CTR. FOR FIN. SERVS., FINTECH BY THE NUMBERS 3 (2017), <https://www2.deloitte.com/content/dam/Deloitte/tr/Documents/financial-services/dcf-fintech-by-the-numbers.pdf> [<https://perma.cc/86PU-FEBY>].

fintech startups.²³⁶ Startups offer the community banks the chance to replace dated technology and thereby attract new customers.²³⁷ Community banks offer startups access to an existing customer base and the ability to offer banking services that are prohibited to nonbanks.²³⁸ In addition, community banks' small size means that they can react more quickly than their Wall Street counterparts which can be appealing to fast-paced startup firms.²³⁹

Banks and technology firms, large and small, are not the only firms interested in fintech. Consumer retailers have much to gain by finding ways, for example, to take control over (and away from banks) customer payments. Walmart has a long history of searching for innovative payment solutions. In 2005, Wal-Mart Bank, a proposed Utah industrial loan bank, filed an application with the FDIC for federal deposit insurance.²⁴⁰ While that application was ultimately withdrawn amidst growing opposition,²⁴¹ Wal-Mart Bank was just one step in Walmart's long search for innovative payment solutions that today takes the form of Walmart Pay, a mobile payment application. While Walmart Pay is linked to traditional bank payment systems (i.e., debit and credit cards), Walmart's interest in mobile payments seems motivated by improving customer experience by easing the checkout process.²⁴² Starbucks offers another example of a retailer's use of fintech innovation. Starbucks's mobile app combines its loyalty program with mobile ordering and payment. The combination of customer-friendly features has made the

²³⁶ Kate Rooney, *Small Banks You've Never Heard of Are Quietly Enabling the Tech Turnover of the Financial Industry*, CNBC (Feb. 15, 2019, 3:11 PM), <https://www.cnbc.com/2019/02/15/small-banks-youve-never-heard-of-quietly-power-the-booming-fintech-industry-.html> [https://perma.cc/Y53L-XSDE].

²³⁷ *Id.*

²³⁸ *Id.*

²³⁹ *Id.*

²⁴⁰ Application for Deposit Insurance for Wal-Mart Bank, 71 Fed. Reg. 10,531–32 (Mar. 1, 2006).

²⁴¹ See generally Arthur E. Wilmarth, Jr., *Wal-Mart and the Separation of Banking and Commerce*, 39 CONN. L. REV. 1539, 1544–48 (2007).

²⁴² *Id.* at 1544–45.

Starbucks app the most widely used loyalty app in the restaurant chain industry.²⁴³

Consideration of the rise of fintech raises concerns for financial stability. To be sure, one of the frequently cited culprits of the 2008–2009 Financial Crisis is financial innovation run amok. On the other hand, the devastation in the wake of the crisis may have unleashed the innovation since that time as customers reevaluated their relationship with established firms and new entrants attempted to fill the void. The question remains whether any of the current or future fintech innovations will pose a threat to future financial stability. The FSB²⁴⁴ released a white paper examining the financial stability implications of fintech.²⁴⁵ The FSB noted important limitations to its study given that relatively little data is currently available.²⁴⁶ Still, the FSB concluded “that there are currently no compelling financial stability risks from emerging FinTech innovations.”²⁴⁷ Since the publication of its 2017 report, the FSB has continued to monitor the financial stability implications of fintech.²⁴⁸

B. *Fintech Patents*

Recall that conventional wisdom suggested that banks did not patent. That changed with developments in the patentability of business methods and banks’ business practices. What we see as potentially important about current patent activity lies in the significance of the patents themselves. Industry-changing products, like collateralized debt obligations, are generally not patentable.²⁴⁹ While a new financial product

²⁴³ David Oragui, *The Success of Starbucks App: A Case Study*, MEDIUM: MANIFEST (June 12, 2018), <https://themanifest.com/mobile-apps/success-starbucks-app-case-study> [https://perma.cc/W42A-98GA].

²⁴⁴ The FSB is an international organization established to promote coordination and standard setting among national financial authorities. See *About the FSB*, FIN. STABILITY BD., <http://www.fsb.org/about> [https://perma.cc/LEX4-93D2].

²⁴⁵ FIN. STABILITY BD., FINANCIAL STABILITY IMPLICATIONS FROM FINTECH (2017), <http://www.fsb.org/wp-content/uploads/R270617.pdf> [https://perma.cc/CPN8-9WTB].

²⁴⁶ *Id.* at 1.

²⁴⁷ *Id.*

²⁴⁸ *Monitoring of FinTech*, *supra* note 217.

²⁴⁹ Dan Awrey, *Complexity, Innovation, and the Regulation of Modern Financial Markets*, 2 HARV. BUS. L. REV. 235, 262 (2012).

idea is not patentable, the systems and methods supporting such products might be.²⁵⁰ Given the burst in technological innovation in fintech, we see the potential for patented innovations to play a crucial role in the future of finance. In defining fintech as discussed above, the availability of patent protection is an important additional factor in assessing whether a technology deserves the extra attention typically afforded to fintech. Recall the discussion above of the ATM as an early form of fintech. Notably, a patented invention was necessary in the development of the ATM. The British government issued a patent for technology that supported the personal identification number (PIN). The ATM could not develop without the PIN.²⁵¹

We observed in our 2014 study that banks were increasing their patent activity. We postulated that this could be merely a defensive move, i.e., that banks were increasing their patent holdings in response to litigation by non-practicing entities (NPEs). We now see evidence that banks and other financial institutions may be using patents in the more traditional way—to protect valuable innovation and capture the full value of their investment. This shift may also be explained or accelerated by the emergence of patent litigation between banks and between other financial institutions. Of course, it's a classic chicken-or-egg story: did banks increase their patent holdings in response to increased litigation or did litigation increase because of banks' larger patent holdings? Whatever the cause, the discussion below examines who leads in fintech patents.

As discussed above, participants in fintech innovation are diverse. The same goes for patent owners. The universe includes big tech, fintech startups, big banks, community banks, and retailers. Because fintech encompasses so many types of innovations, there are many ways to view the question of which firms appear to dominate. At the broadest level, large technology firms eclipse banks in overall patent holdings. All banks combined own less than a quarter of IBMs granted and pending patent families.²⁵² This comes as no surprise given technology companies' long history with using patents to protect their intellectual property compared with the banks' relatively recent interest in patent protection. In terms of

²⁵⁰ See, e.g., U.S. Patent No. 8,078,521 (filed Dec. 13, 2011).

²⁵¹ Schindler, *supra* note 224, at 3.

²⁵² CIPHER, IP STRATEGY REPORT 18 (2018), https://cipher.ai/wp-content/uploads/2020/04/Cipher-IP-Strategy-Report-2018-min-min_compressed.pdf [<https://perma.cc/FD38-KQV3>].

individual bank holdings, Bank of America stands way ahead of its big bank competitors. Bank of America holds 2,547 patents with JP Morgan Chase as the next largest owner with 515 patents.²⁵³ Among the patents owned by banks, IT infrastructure, online and mobile banking, and transaction data processing account for the vast majority of patents.²⁵⁴

With regard to fintech patents in particular, a 2015 study listed the following companies as the top five holders of fintech patents: Visa (1,342), Bank of America (1,052), Hitachi (1,048), Shinhan Bank (907), and Bizmodeline (867).²⁵⁵ This list represents significant diversity. Visa is a financial institution that provides its member financial institutions with branded payment products (e.g., debit, credit cards). Bank of America is the second largest U.S. bank. Hitachi is a Japanese conglomerate. Shinhan Bank is a large South Korean bank. Bizmodeline is another South Korean company with significant patent holdings. Large tech firms in this study included IBM (747) ranked eighth, and Microsoft (476) ranked sixteenth.²⁵⁶ This study also identified fintech startups' patent holdings, with Square holding the most at 143.²⁵⁷

Drilling down further to specific types of fintech patents, we also see diverse holdings. Blockchain and other distributed ledger technologies (DLT) are an important fintech subcategory. DLT has numerous applications in finance beyond its most popular application facilitating the transfer and recording of cryptocurrencies. DLT has the potential to eliminate inefficiencies in payments, clearing, and settlement of a diverse array of financial transactions. Patent activity in this area reflects the importance of this innovation. A 2016 study found at least seventy-two U.S. patent applications involving cryptocurrency and blockchain inventions.²⁵⁸ That study identified Bank of America as the top filer and

²⁵³ *Id.* at 17.

²⁵⁴ *Id.* at 17–18.

²⁵⁵ RELECURA, FINTECH: AN IP PERSPECTIVE 7 (2015), <https://relecura.com/2020/04/15/fintech-an-intellectual-property-perspective> [<https://perma.cc/M6ZH-BGKU>].

²⁵⁶ *Id.*

²⁵⁷ *Id.*

²⁵⁸ ALIXPARTNERS, THE RACE TO PATENT THE BLOCKCHAIN 4 (2016), https://www.alixpartners.com/media/3782/ap_the_race_to_patent_the_blockchain_sep_2016.pdf [<https://perma.cc/E22N-KVLQ>].

also listed filings by American Express, eBay, Goldman Sachs, IBM, JP Morgan Chase, PayPal, Visa, and Wells Fargo.²⁵⁹

Mobile payments technology is thriving. A 2017 study showed Visa and Mastercard topping the list of mobile payments patents holders with 327 and 308 patented inventions each.²⁶⁰ Bank of America and Bizmodeline hold third and fourth place with 260 and 246 patented inventions each.²⁶¹ PayPal is in fifth with 145.²⁶² As discussed in Part V, mobile payments technology may become an important source of litigation activity. We saw in Part III that Apple and Google individually filed more CBMs than all financial institutions combined. Google and Apple are also significant patent holders in mobile payments technology, ranking eleventh and thirteenth respectively in the 2017 study.²⁶³

Owning patents is, of course, only the beginning of the story. A patented innovation that never sees wide adoption is hardly worth our notice. On the other hand, patented innovations that spur litigation can forecast lasting changes to the industry and the services it provides. For this reason, we explore next the possible early signs of a bank-on-bank patent war.

V. BANK-ON-BANK PATENT WARS

As discussed in our 2014 study, although banks did not traditionally rely on patents to protect their innovations, that began to change after the Federal Circuit decided *State Street*. In the early years, financial institutions were patenting primarily for defensive purposes—meaning to ward off infringement suits. Recent developments suggest, however, that trends may be shifting as banks go on the offensive to enforce their patent rights. This Part explores the history of patent wars in this country, discusses *USAA v. Wells Fargo*—the first bank-on-bank patent

²⁵⁹ *Id.* at 5.

²⁶⁰ Vivek Sharma, *Mobile Payments: FinTech vs. Non-FinTech Patent Landscape*, IPWATCHDOG (Jan. 6, 2017), <https://www.ipwatchdog.com/2017/01/06/mobile-payments-fintech-vs-non-fintech-patent-landscape/id=76455> [<https://perma.cc/XD6H-RVSZ>].

²⁶¹ *Id.*

²⁶² *Id.*

²⁶³ *Id.*

litigation—and then considers whether that case signals a fintech patent war to come.

A. *Patent Wars of the Past*

In 2018, headlines from around the globe proclaimed that the smartphone wars were finally over, as Apple and Samsung had reached a settlement agreement bringing their seven-year, highly-publicized patent dispute to an end.²⁶⁴ For many, the prolonged litigation between the tech giants was the first and only patent war they knew anything about. In reality, patent wars are not a modern phenomenon but—like patents themselves—have been around for a very long time.²⁶⁵

The first wave of patent wars in the United States came with the Industrial Revolution, during which American society transitioned from agrarian and rural to largely industrial and urban.²⁶⁶ The revolution began with the opening of textile and cotton mills in New England in the 1790s and steadily spread to other parts of the young nation.²⁶⁷ The next century was marked by the introduction of disruptive technologies such as the sewing machine, telephone, and light bulb that ultimately became the subject of major patent wars.²⁶⁸

Today, the name “Singer” is synonymous with sewing machines. Yet it was Elias Howe, not Isaac Merritt Singer, who invented and was awarded a patent for the sewing machine in 1846.²⁶⁹ Rather than taking a license and paying fees, Singer and several other competitors patented

²⁶⁴ See, e.g., Ellen Daniel, *Is the Apple and Samsung Patent War Finally Over?*, VERDICT (June 29, 2018, 2:42 PM), <https://www.verdict.co.uk/apple-and-samsung-patent-war> [<https://perma.cc/A32M-57LV>]; Nicas, *supra* note 4; *Samsung, Apple Reach Settlement over Design Dispute*, KOREA TIMES (June 28, 2018, 5:03 PM), https://www.koreatimes.co.kr/www/tech/2020/01/133_251391.html [<https://perma.cc/4ZRC-QB2U>].

²⁶⁵ See, e.g., CHRISTOPHER BEAUCHAMP, *INVENTED BY LAW: ALEXANDER GRAHAM BELL AND THE PATENT THAT CHANGED AMERICA* 1–10 (2015); Mossoff, *supra* note 5, at 465.

²⁶⁶ Mossoff, *supra* note 5, at 457.

²⁶⁷ History.com Eds., *Industrial Revolution*, HISTORY (Sept. 9, 2019), <https://www.history.com/topics/industrial-revolution/industrial-revolution> [<https://perma.cc/B2JB-P4YW>].

²⁶⁸ Mossoff, *supra* note 5, at 466.

²⁶⁹ Alex Palmer, *How Singer Won the Sewing Machine War*, SMITHSONIAN MAG. (July 14, 2015), <https://www.smithsonianmag.com/smithsonian-institution/how-singer-won-sewing-machine-war-180955919/#IVgOrc5RQeSV3kxC.99> [<https://perma.cc/89FX-AF85>].

their own sewing machines that allegedly improved upon Howe's original invention.²⁷⁰ The result was a situation known today as a "patent thicket," where numerous patents owned by different entities cover the same product.²⁷¹ Because patent thickets frustrate commercialization, the parties turned to the courts for a resolution. The first round of lawsuits began in 1852 when Howe sued Singer.²⁷² Within a couple of years, Howe and Singer reached an agreement, joined forces, and started suing other competitors.²⁷³ After dozens of lawsuits were filed, the parties ultimately resolved their dispute by creating the first patent pool whereby they combined their patents and split the licensing revenue.²⁷⁴

Two other major patent wars of the nineteenth century likewise involved transformative inventions: the telephone and the light bulb. The telephone war involved well-known figures like Alexander Graham Bell and Thomas Edison.²⁷⁵ Initially, though, the dispute was between Bell and Elisha Gray, who both allegedly applied for a patent on the same telephone technology on the same day in 1876.²⁷⁶ But it was Bell who was ultimately determined to be the first inventor and granted the patent.²⁷⁷ Extensive litigation ensued, with Bell and his associates ultimately filing close to 600 patent infringement suits.²⁷⁸ In the end, Bell's campaign was successful and helped create one of the most powerful monopolies in history, which had long-lasting effects on the telecommunications industry in the United States.²⁷⁹

Edison, of course, also played a central role in the patent war over the light bulb. It is commonly believed that Edison invented the light

²⁷⁰ *Id.*

²⁷¹ Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting*, in 1 *INNOVATION POLICY AND THE ECONOMY* 119, 120–22 (Adam B. Jaffe, Josh Lerner & Scott Stern eds., 2001), <https://www.nber.org/chapters/c10778.pdf> [<https://perma.cc/D4A2-Y2U4>].

²⁷² Adam Mossoff, *The Rise and Fall of the First American Patent Thicket: The Sewing Machine Wars of the 1850s*, 53 *ARIZ. L. REV.* 165, 182–85 (2011).

²⁷³ *See id.* at 190–91.

²⁷⁴ *Id.* at 194–96.

²⁷⁵ *See, e.g.,* BEAUCHAMP, *supra* note 265, at 109–10.

²⁷⁶ *Id.* at 40–42, 67.

²⁷⁷ Mark A. Lemley, *The Myth of the Sole Inventor*, 110 *MICH. L. REV.* 709, 720–22 (2012).

²⁷⁸ BEAUCHAMP, *supra* note 265, at 12, 74.

²⁷⁹ *Id.* at 1–10.

bulb, but the story is not quite so simple.²⁸⁰ A primitive version of the light bulb had been around for decades when Edison and his team patented a commercially viable system of interior lighting in the late 1870s.²⁸¹ Because Edison faced fierce competition in the lighting market, however, a patent war erupted. For fifteen years, Edison vigorously litigated his patent portfolio and ultimately emerged triumphant.²⁸² To be sure, by 1910 General Electric—the successor to Edison’s companies—controlled ninety-seven percent of all light bulbs sold in the United States, so waging war appears to have paid off.²⁸³

The turn of the century brought with it a new round of patent wars, this time focusing on the automobile and aviation industries.²⁸⁴ In 1895, the Patent Office granted U.S. Patent No. 549,160 (“160 patent”), titled “Road Engine,” to attorney George Selden and ignited a patent war among car manufacturers.²⁸⁵ The problem with the Selden patent was that it was pending at the PTO for sixteen years, so by the time it issued, the technology was in widespread use.²⁸⁶ The Selden patent, in other words, was what is referred to today as a “submarine” patent, whereby applicants use delay tactics at the PTO and then surprise a mature market with a patent that nobody knew anything about.²⁸⁷

A few years after the ‘160 patent was issued, Selden assigned it to the Electric Vehicle Company, which then launched an enforcement

²⁸⁰ Lea Shaver, *Illuminating Innovation: From Patent Racing to Patent War*, 69 WASH. & LEE L. REV. 1891, 1910 (2012).

²⁸¹ *Id.* at 1910–11.

²⁸² *Id.*

²⁸³ *Id.*

²⁸⁴ See, e.g., Daniel S. Sternberg, *A Brief History of RAND*, 20 B.U. J. SCI. & TECH. L. 211, 217–220 (2014).

²⁸⁵ See WILLIAM GREENLEAF, *MONOPOLY ON WHEELS: HENRY FORD AND THE SELDEN AUTOMOBILE PATENT* 87–89, 148–54 (1961); Donna Harris, *Landmark Patent Case Broke Selden’s Lock on Auto Industry*, AUTOMOTIVE NEWS (June 16, 2003, 1:00 AM), <https://www.autonews.com/article/20030616/SUB/306160708/landmark-patent-case-broke-selden-s-lock-on-auto-industry> [<https://perma.cc/CV7L-9GPB>].

²⁸⁶ *Elec. Vehicle Co. v. C.A. Duerr & Co.*, 172 F. 923, 924 (C.C.S.D.N.Y. 1909), *rev’d sub nom.* *Columbia Motor Car Co. v. C.A. Duerr & Co.*, 184 F. 893 (2d Cir. 1911).

²⁸⁷ Michael A. Carrier & Carl J. Minniti III, *Biologics: The New Antitrust Frontier*, 2018 U. ILL. L. REV. 1, 38 (2018). Since 1995, the vast majority of patent applications must be made public eighteen months after filing, which has significantly reduced—although not completely eliminated—the “submarine” patent problem in the United States. *Id.* at 39–40.

campaign against numerous automobile manufacturers.²⁸⁸ Similar to the sewing machine, the parties ultimately settled their dispute through a pooling arrangement pursuant to which members joined the Association of Licensing Automobile Manufacturers (ALAM) and shared licensing royalties.²⁸⁹ This time, however, the patent war did not end there. In the early 1900s, Henry Ford—whose goal was to mass produce affordable automobiles—attempted to join the ALAM but was rebuffed.²⁹⁰ Refusing to back down, Ford proceeded with his manufacturing plans and shortly thereafter was sued for patent infringement.²⁹¹ After prolonged litigation lasting almost a decade, the courts sided with Ford, concluding that his product did not infringe on the Selden patent.²⁹² The ALAM consequently dissolved and was replaced by a new organization, the Automobile Board of Trade (ABT), that welcomed all applicants and granted members royalty-free cross licenses for all patents.²⁹³ Indeed, the ABT's approach served as a model for patent pooling arrangements going forward, including in the airline industry.²⁹⁴

The Wright brothers are renowned for inventing the airplane and achieving the first successful flight in Kitty Hawk, North Carolina.²⁹⁵ No doubt their invention was groundbreaking, but the Wrights' success in the courtroom played a huge role in securing their place in history. In the early 1900s, various parties were working on aircraft technology—

²⁸⁸ See Jonathan M. Barnett, *The Anti-Commons Revisited*, 29 HARV. J.L. & TECH. 127, 152 n.87 (2015); A. Samuel Oddi, *Un-Unified Economic Theories of Patents: The Not-Quite-Holy Grail*, 71 NOTRE DAME L. REV. 267, 320 n.329 (1996) ("In 1899, Selden assigned his rights in the patent to the Electric Vehicle Co. for \$10,000 and 20% of royalties derived from the patent.").

²⁸⁹ Barnett, *supra* note 288, at 152–53.

²⁹⁰ GREENLEAF, *supra* note 285, at 107–08; Harris, *supra* note 285.

²⁹¹ See, e.g., Sternberg, *supra* note 284, at 217–19.

²⁹² *Columbia Motor Car Co. v. C.A. Duerr & Co.*, 184 F. 893, 915–16 (2d Cir. 1911). Reflecting on the lawsuit, Ford said, "No man has a right to profit from a patent only. That produces parasites, men who are willing to lay back on their oars and do nothing." *"Ford of the Air" Soon to be Ready: Cheap Motor With Replaceable Parts Will Be Put into Service on Airplanes*, N.Y. TIMES (Oct. 7, 1925), https://timesmachine.nytimes.com/timesmachine/1925/10/07/100024121.pdf?pdf_redirect=true&ip=0 [<https://perma.cc/U54N-YP6E>]. This sounds an awful lot like the anti-troll sentiments we have heard time and again over the past two decades.

²⁹³ GREENLEAF, *supra* note 285, at 412.

²⁹⁴ Sternberg, *supra* note 284, at 219.

²⁹⁵ See, e.g., *The Wright Brothers: The Invention of the Aerial Age*, SMITHSONIAN NAT'L AIR & SPACE MUSEUM, <https://airandspace.si.edu/exhibitions/wright-brothers-invention-aerial-age> [<https://perma.cc/HE5U-3SPR>]

specifically flight stabilization—including Orville and Wilbur Wright. The Wrights invented a system that controlled flight by warping the airplane's wings, for which they ultimately obtained U.S. Patent No. 821,393 (“‘393 patent”), titled “Flying-Machine,” in 1906.²⁹⁶ Around the same time, Glenn Curtiss developed his own system of control that achieved the same end, i.e., aircraft stabilization, but through different means, namely, wing flaps.²⁹⁷ When the industry adopted Curtiss's method, the Wright brothers sued for patent infringement.

The Wrights initiated the airplane patent war by filing suit against Curtiss in 1909 alleging that his method of stabilization infringed the ‘393 patent.²⁹⁸ They argued, in short, that the ‘393 patent was broad and covered various methods of controlling a flying machine, including the wing-flapped method used by Curtiss.²⁹⁹ The court agreed and issued an injunction against Curtiss prohibiting his company from manufacturing or selling aircraft.³⁰⁰ But the battle didn't end there as Curtiss then attempted to design around the ‘393 patent, triggering yet another round of lawsuits.³⁰¹ And while Curtiss was their primary target, the Wright brothers also sued other accused infringers during this same time period.³⁰² The Wrights' campaign ultimately came to an end once World War I broke out and the government forced the parties to enter into cross-licensing agreements so that sufficient aircraft were available for battle.³⁰³

²⁹⁶ George Bittlingmayer, *Property Rights, Progress, and the Aircraft Patent Agreement*, 31 J.L. & ECON. 227, 230–31 (1988).

²⁹⁷ *Id.*; Sternberg, *supra* note 284, at 219–20.

²⁹⁸ See Herbert A. Johnson, *The Wright Patent Wars and Early American Aviation*, 69 J. AIR L. & COM. 21, 27–29 (2004).

²⁹⁹ See Charles Shifley, *The Wright Brothers: Would Their Patent Survive Today's Patent Law Rigors? Doubtful*, 100 J. PAT. & TRADEMARK OFF. SOC'Y 12, 16–17 (2018).

³⁰⁰ *Wright Co. v. Herring-Curtiss Co.*, 211 F. 654 (2d Cir. 1914); *see also* Johnson, *supra* note 298, at 27–30 (discussing history of litigation between the Wrights and Curtiss).

³⁰¹ Bittlingmayer, *supra* note 296, at 231 (explaining that Curtiss made “a small change in his method of controlling the ailerons, which required the Wright corporation to begin litigating anew”); Johnson, *supra* note 298, at 29–30 (discussing how, despite modifications to the product, the court held in subsequent proceedings that Curtiss infringed through the doctrine of equivalents).

³⁰² *Wright Co. v. Paulhan*, 177 F. 261 (C.C.S.D.N.Y. 1910); *see also* Johnson, *supra* note 298, at 31–34 (discussing lawsuits brought against exhibition aviators).

³⁰³ See Barnett, *supra* note 288, at 165–68 (stating that aviation market was rescued through government intervention); Robert P. Merges & Richard R. Nelson, *On the Complex Economics of*

By no means is this an exhaustive list of historical patent wars. The twentieth century also witnessed hard-fought battles over the intellectual property covering the radio, laser technology, disposable diapers, semiconductor chips, and instant photography, just to mention a few.³⁰⁴ While each of these stories is unique, common threads run through them all. Disruptive and groundbreaking technologies spur patent wars. Yet, the “best” of those technologies does not necessarily win the war. Instead, it appears to be the party with the most effective litigation strategy—meaning the most persuasive arguments, the deepest pockets, the strongest conviction, or a combination of all three—who generally ends up the winner.³⁰⁵

The dawn of the Information Age, or the Third Industrial Revolution as it is sometimes called, has ushered in a new era of innovation.³⁰⁶ New technologies not only have given birth to new industries but transformed old ones. From personal computers and smartphones to artificial intelligence and self-driving cars, the current economy is driven by technological advances and, consequently, patents are arguably more important than ever.³⁰⁷ It should come as no surprise, then, that patent wars are once again on the rise.

Patent Scope, 90 COLUM. L. REV. 839, 890–91 (1990) (explaining that the Secretary of the Navy facilitated an automatic cross-licensing arrangement).

³⁰⁴ See generally FRED WARSHOFSKY, *THE PATENT WARS: THE BATTLE TO OWN THE WORLD'S TECHNOLOGY* (1994); Rose Eveleth, *Five Epic Patent Wars That Don't Involve Apple*, SMITHSONIAN MAG. (Aug. 27, 2012), <https://www.smithsonianmag.com/smart-news/five-epic-patent-wars-that-dont-involve-apple-16729368> [<https://perma.cc/UR8K-LU3W>].

³⁰⁵ See, e.g., Warshofsky, *supra* note 304, at 111–12, 119–21 (explaining how the aggressive litigation strategies of Texas Instruments regarding semiconductor chip technology helped the company earn enormous profits).

³⁰⁶ Donald G. Gifford, *Technological Triggers to Tort Revolutions: Steam Locomotives, Autonomous Vehicles, and Accident Compensation*, 11 J. TORT L. 71, 143 (2018) (stating that “[s]ociety is now in the early phases of a technological revolution that will rival the Industrial Revolution in importance”); Daniel F. Spulber, *Should Business Method Inventions Be Patentable?*, 3 J. LEGAL ANALYSIS 265, 316 (2011) (explaining how “[a]dvances in information and communication technologies . . . have driven major changes in economic activity” and contributed to the third Industrial Revolution).

³⁰⁷ See, e.g., John Villasenor, *Why Patents and Copyright Protections Are More Important Than Ever*, SCI. AM. (Nov. 14, 2013), <https://www.scientificamerican.com/article/why-patents-copyright-protections-are-more-important-than-ever> [<https://perma.cc/5ZXF-TREU>] (arguing that intellectual property rights are vital to the current economy).

For close to a decade, Apple and Samsung—the largest tech companies in the world—went head-to-head in an epic battle over patents related to smartphone technology.³⁰⁸ Apple first sued Samsung for patent infringement in April 2011 and sought, among other things, an injunction to block Samsung from importing and selling its smartphones in the United States.³⁰⁹ Samsung countersued, eventually leading to a full-fledged patent war between the two companies across the globe.³¹⁰ This high-drama litigation included a \$1 billion jury verdict in favor of Apple (that was reduced by the district judge and later reversed in part by the Federal Circuit),³¹¹ an ITC order in favor of Samsung that banned the importation of certain allegedly infringing Apple products (until President Obama vetoed it),³¹² and a trip to the Supreme Court.³¹³ In 2018, Apple and Samsung agreed to settle after a retrial resulted in a jury awarding Apple \$539 million in damages.³¹⁴ There was no clear winner in the end, and it's hard to say whether it was worth the time, energy, and resources it took to fight this prolonged battle.

³⁰⁸ See *supra* note 264.

³⁰⁹ Apple, Inc. v. Samsung Elecs. Co., 678 F.3d 1314, 1319 (Fed. Cir. 2012); Bernard Chao, *Causation and Harm in a Multicomponent World*, 164 U. PA. L. REV. ONLINE 61, 64–65 (2016).

³¹⁰ See, e.g., THOMAS F. COTTER, PATENT WARS: HOW PATENTS IMPACT OUR DAILY LIVES 229–40 (2018).

³¹¹ Megan M. La Belle, *Against Settlement of (Some) Patent Cases*, 67 VAND. L. REV. 375, 403 n.198 (2014); Jan Wolfe & Stephen Nellis, *U.S. Jury Awards Apple \$539 Million in Samsung Patent Trial*, REUTERS (May 24, 2018, 6:10 PM), <https://www.reuters.com/article/us-apple-samsung-elec/u-s-jury-awards-apple-539-million-in-samsung-patent-retrial-cnet-idUSKCN1IP3Q1> [<https://perma.cc/8WU9-F85V>]; Robert W. Wood, *Apple Samsung Verdict Reversed, but How About Taxes?*, FORBES (May 19, 2015, 10:59 AM), <https://www.forbes.com/sites/robertwood/2015/05/19/apple-samsung-verdict-reversed-but-how-about-taxes/#aabb38175d63> [<https://perma.cc/T6DW-PJQR>].

³¹² See Connie Guglielmo, *President Obama Vetoes ITC Ban on iPhone, iPads; Apple Happy, Samsung Not*, FORBES (Aug. 3, 2013, 9:40 PM), <https://www.forbes.com/sites/connieguglielmo/2013/08/03/president-obama-vetoes-itc-ban-on-iphone-ipads-apple-happy-samsung-not/#12dff0b58c3d> [<https://perma.cc/WP4X-R6EP>]; Chris O'Brien, *White House Overrides ITC Trade Ban on Apple iPhones, iPads*, L.A. TIMES (Aug. 3, 2013, 12:00 AM), <https://www.latimes.com/business/la-xpm-2013-aug-03-la-fi-tn-white-house-overrules-trade-ban-on-apple-iphones-ipads-20130803-story.html>.

³¹³ Peterson, *supra* note 4.

³¹⁴ Stephen Nellis, *Apple, Samsung Settle U.S. Patent Dispute*, REUTERS (June 27, 2018, 2:46 PM), <https://www.reuters.com/article/us-apple-samsung-elec/apple-samsung-settle-u-s-patent-dispute-idUSKBN1JN2S4> [<https://perma.cc/XS6C-5Y9F>].

While Apple and Samsung were the chief players in the smartphone wars, they were not alone. It was actually Nokia, a Finnish telecommunications company, that fired the first shot in 2009 when it sued Apple for infringing ten of its patents.³¹⁵ For the next decade, practically all the major players in the smartphone business became enmeshed in the patent wars in one way or another.³¹⁶ When Google's Android operating system became the target of a series of lawsuits, for example, the company responded by acquiring Motorola Mobility, only to sell it off to Lenovo a few years later at a significant loss.³¹⁷ Other companies involved in the smartphone patent wars included Microsoft, Ericsson, Huawei, and HTC, just to name a few.³¹⁸

So now that the smartphone wars are over, what's next? Forecasters have predicted that the next major patent battle could be over automated cars, the internet of things, cannabis technology, or fintech.³¹⁹ Truth be told, any of these technologies might find itself at the center of the next patent war. But a recent lawsuit, *USAA v. Wells Fargo*, may be an indicator of which direction we are headed.

B. *USAA v. Wells Fargo*

The United Services Automobile Association (USAA) is a financial company headquartered in San Antonio, Texas that provides members of the military and their families banking, insurance, investment, and retirement products and services.³²⁰ Unlike traditional banks, USAA has always had to interact with its customers remotely because they are located around the world.³²¹ Consequently, USAA has long relied on

³¹⁵ COTTER, *supra* note 310, at 229–30.

³¹⁶ *Id.* at 230.

³¹⁷ *Id.* (explaining that Google purchased Motorola in 2011 for \$12.5 billion, primarily for its patent portfolio, and sold it in 2014 for just under \$3 billion).

³¹⁸ *Id.*

³¹⁹ See *supra* Introduction.

³²⁰ Complaint at 2, *United Servs. Auto Ass'n v. Wells Fargo Bank* (E.D. Tex. June 7, 2018) (No. 2:18-CV-00245).

³²¹ *Id.* at 3.

innovation and new technologies—many of which are award-winning—to best serve its customer base.³²²

One of USAA's key technologies is Deposit@Home®, a system that facilitates capture and remote deposit of checks. USAA's system, which was launched in 2006, allows consumers to deposit checks at anytime from anywhere in the world by taking pictures of the checks with their mobile phones.³²³ Between 2013 and 2018, USAA was granted numerous patents related to its remote deposit capture (RDC) technology including, but not limited to, the following: U.S. Patent Nos. 8,392,332 (“332 patent”); 8,699,779 (“779 patent”); 8,708,227 (“227 patent”); 8,977,571 (“571 patent”); 9,224,136 (“136 patent”); 9,336,517 (“517 patent”); 9,818,090 (“090 patent”); 10,013,605 (“605 patent”); and 10,013,681 (“681 patent”) (collectively, “USAA RDC Patents”). USAA claims it has invested millions of dollars and thousands of employee hours developing these patented technologies and does not license them to competitors, including Wells Fargo.³²⁴

Yet, USAA is not alone in securing and enforcing patents related to RDC technology. Mitek Systems, a California-based software company, threatened to sue USAA back in 2012 for infringing several of its patents covering mobile deposit technology.³²⁵ USAA responded by filing a lawsuit against Mitek seeking a declaratory judgment that the patents were not infringed and unenforceable,³²⁶ and asserting claims against Mitek for trade secret misappropriation, breach of contract, and fraud.³²⁷ Specifically, USAA alleged that it was involved in business dealings with Mitek pursuant to which USAA licensed software from Mitek beginning around 2006.³²⁸ USAA claims that, in the course of those dealings, it

³²² See, e.g., Wendy Poling, *Introducing USAA Labs: Member-Driven Innovation*, USAA (Feb. 2017), <https://communities.usaa.com/t5/Money-Matters/Introducing-USAA-Labs-Member-driven-innovation/ba-p/114187> [<https://perma.cc/Y5WX-BSX7>]; *USAA—Most Innovative Finserv of the Year: 2018 BAI Global Innovation Award Winners*, BAI, <https://www.bai.org/globalinnovations/awards/2018-winners/usaa-finserv-of-the-year> [<https://perma.cc/9SJL-Y3JS>].

³²³ Complaint, *supra* note 320, at 3–4, ¶¶ 10–12.

³²⁴ *Id.* at 4, ¶ 12.

³²⁵ Complaint at 4–5, ¶¶ 8–11, *United Servs. Auto Ass'n v. Mitek Sys., Inc.* (W.D. Tex. Mar. 29, 2012) (No. 5:12-cv-00282).

³²⁶ *Id.* at 5, ¶ 12.

³²⁷ *Id.* at 1, ¶ 1.

³²⁸ *Id.* at 5–7.

disclosed the RDC invention to Mitek pursuant to a confidentiality agreement.³²⁹ According to USAA, Mitek inappropriately used that proprietary information to apply for the patents now being asserted against USAA.³³⁰ Following more than two years of vigorous litigation, USAA prevailed on a motion for summary judgment on non-infringement grounds.³³¹ Mitek and USAA then reached a settlement agreement in September 2014. Although no money changed hands, the parties recognized that they each have distinct patent rights with respect to RDC, and Mitek promised not to sue USAA for patent infringement based on any of its current products, including its Deposit@Home® application.³³²

Right around the time the USAA-Mitek litigation started, there was an uptick in the use of RDC technology throughout the United States.³³³ Whereas only about 500 financial institutions offered the technology in 2012, that number grew to almost 6,000 by 2016 with an estimated eighty million consumers using remote deposit.³³⁴ As use of RDC became widespread, USAA looked to monetize its patents. To that end, USAA sent letters to Wells Fargo and hundreds of other banks that use Mitek's technology encouraging them to take a license.³³⁵ While it is unclear

³²⁹ *Id.* at 6, ¶ 17.

³³⁰ *Id.* at 8–9, ¶ 25; *Mitek Claims USAA Stole Its RDC Patent to Make Knock-Off Version*, CREDIT UNION J. (Apr. 18, 2012, 4:55 PM), <https://www.cujournal.com/news/mitek-claims-usaa-stole-its-rdc-patent-to-make-knock-off-version> [https://perma.cc/ATH6-EL45].

³³¹ Michael T. Zoppo, *Insight: Patents as Weapons in Financial Services Industry—A New Era*, BLOOMBERG L. (Mar. 22, 2019, 4:00 AM), https://www.bloomberglaw.com/document/X669ABGK000000?bna_news_filter=ip-law&jcsearch=BNA%2520000001695ee2d3dbaf797eeb7c1a0002#jcite [https://perma.cc/L5RZ-CGXF].

³³² See Press Release, Mitek Sys. Inc., USAA and Mitek Settle Lawsuit, GLOBAL NEWSWIRE (Sept. 3, 2014, 6:00 PM), <https://www.globenewswire.com/news-release/2014/09/03/663580/10097126/en/USAA-and-Mitek-Settle-Lawsuit.html> [https://perma.cc/8PS4-WEKZ].

³³³ See Bryan Yurcan, *USAA Wants Banks to Pay It for Remote Deposit Capture*, AM. BANKER (May 22, 2017, 1:01 PM), <https://www.americanbanker.com/news/usaa-wants-banks-to-pay-it-for-remote-deposit-capture> [https://perma.cc/B6EG-CD7Q].

³³⁴ Bob Meara, *State of Remote Deposit Capture 2017: The Final Stretch*, CELENT (Mar. 20, 2017), <https://www.celent.com/insights/185277546> [https://perma.cc/KE5J-XBTN]; Yurcan, *supra* note 333.

³³⁵ Penny Crosman, *USAA Won \$200M from Wells Fargo in Patent Fight. Will Others Be On the Hook?*, AM. BANKER (Nov. 18, 2019, 12:10 PM), <https://www.americanbanker.com/news/usaa-won-200m-from-wells-fargo-for-patent-infringement-will-it-stop-there> [https://perma.cc/P8X4-6SXB]; Yurcan, *supra* note 333 (quoting USAA's Vice President of Corporate

whether any banks took USAA up on that offer, we know Wells Fargo engaged in discussions with USAA, but ultimately declined to take a license.³³⁶

On June 7, 2018, USAA sued Wells Fargo—one of the largest banks in the country—in the U.S. District Court for the Eastern District of Texas for infringing four of the USAA RDC Patents.³³⁷ Just a month later, USAA filed a second infringement suit in the same court against Wells Fargo—this time asserting the remaining five USAA RDC Patents.³³⁸ Wells Fargo initially responded to both suits by answering the complaint, asserting various affirmative defenses, and seeking a declaratory judgment of non-infringement and invalidity.³³⁹ Notably absent from the response were counterclaims against USAA for infringement of Wells Fargo patents, something we usually see in patent infringement cases between competitors.³⁴⁰

Why USAA targeted Wells Fargo among all the banks using Mitek's RDC technology is hard to know. Perhaps it is because Wells Fargo had admitted how essential mobile deposit is for its customers.³⁴¹ Or maybe USAA was trying to minimize the risk of being countersued for patent infringement since Wells Fargo has a far smaller patent portfolio than, say, Bank of America or JP Morgan Chase.³⁴² Indeed, as just mentioned, Wells Fargo had *not* asserted any of its patents against USAA. Finally, USAA may have believed that Wells Fargo would settle quickly and take

Development, Neff Hudson, as saying, “[W]e’re looking at a license program so that we can bring some of the value [the technology has created] back to our membership base.” (insertion in original)).

³³⁶ First Amended Complaint at 16–17, ¶ 53, *United Servs. Auto Ass’n v. Wells Fargo Bank* (E.D. Tex. Nov. 28, 2018) (No. 2:18-CV-00245).

³³⁷ Complaint, *supra* note 320.

³³⁸ Complaint, *United Servs. Auto Ass’n v. Wells Fargo Bank* (E.D. Tex. Aug. 17, 2018) (No. 2:18-CV-00366).

³³⁹ See generally Defendant Wells Fargo Bank, N.A.’s Answer, Affirmative Defenses, and Counterclaims to Plaintiff’s Complaint, *United Servs. Auto Ass’n v. Wells Fargo Bank* (E.D. Tex. Aug. 14, 2018) (No. 2:18-CV-00245) [hereinafter Answer 1]; Defendant Wells Fargo Bank, N.A.’s Answer, Affirmative Defenses, and Counterclaim to Plaintiff’s Complaint, *United Servs. Auto Ass’n v. Wells Fargo Bank* (E.D. Tex. Oct. 15, 2018) (No. 2:18-cv-00366) [hereinafter Answer 2].

³⁴⁰ Instead, Wells Fargo only counterclaimed for a declaratory judgment of non-infringement and invalidity. Answer 2, *supra* note 339, at 26–27.

³⁴¹ See Answer 1, *supra* note 339, at 6, ¶ 21.

³⁴² See *supra* Section IV.B (discussing patent holdings of banks).

a license in light of the other major scandals and lawsuits facing Wells Fargo in recent years.³⁴³ Whatever the reason, it soon became clear that Wells Fargo planned to use full resources to defend itself against USAA's claims.

Shortly after answering the complaints, Wells Fargo began to put its defensive strategy into action. In the first lawsuit, Wells Fargo brought a motion for judgment on the pleadings pursuant to Federal Rule of Civil Procedure 12(c) on the grounds that the patents-in-suit were ineligible subject matter under 35 U.S.C. § 101.³⁴⁴ USAA then filed its opposition to the 12(c) motion in late October 2018 arguing that its invention was patentable subject matter under § 101 and relevant case law.³⁴⁵ On November 8, 2018—just a couple of weeks after USAA filed its opposition to the 12(c) motion—Wells Fargo petitioned the PTAB to review the USAA RDC Patents at issue in the first lawsuit in a CBM proceeding.³⁴⁶ Like in so many patent cases, *USAA v. Wells Fargo* was now proceeding in parallel at the District Court and the PTAB.

On November 28, 2018, USAA filed a First Amended Complaint to address the issues raised by Wells Fargo's motion for judgment on the pleadings.³⁴⁷ The court then discussed Wells Fargo's motion as moot but granted leave to re-file in fifteen days.³⁴⁸ Wells Fargo later informed the court that it did not intend to re-file the Rule 12(c) motion, but said it

³⁴³ See, e.g., Matt Egan, *The Two-Year Wells Fargo Horror Story Just Won't End*, CNN (Sept. 7, 2018, 11:43 AM), <https://money.cnn.com/2018/09/07/news/companies/wells-fargo-scandal-two-years/index.html> [<https://perma.cc/9VT5-QYAJ>] (discussing how Wells Fargo had experienced a “cascade of scandals that . . . rocked . . . [the bank] to its core”); Dr. Nir Kossovsky, *This is Why USAA Singled Out Wells Fargo for Patent Infringement*, AM. BANKER (June 20, 2018, 10:02 AM), <https://www.americanbanker.com/opinion/this-is-why-usaa-singled-out-wells-fargo-for-patent-infringement> [<https://perma.cc/SH62-FH9L>] (“Wells Fargo is relatively more vulnerable than its peers, its defenses more likely to be questioned and discounted because its ‘soft power’—the reputation institutions build through credible communications and authentic trustworthy actions over time—has been significantly eroded.”).

³⁴⁴ Defendant's Motion for Judgment on the Pleadings, *United Servs. Auto Ass'n v. Wells Fargo Bank* (E.D. Tex. Sept. 18, 2018) (No. 2:18-CV-00245).

³⁴⁵ Response, *United Servs. Auto Ass'n v. Wells Fargo Bank*, No. 2:18-CV-00245 (E.D. Tex. Oct. 26, 2018).

³⁴⁶ Petition for Covered Business Method Review of Claims 1-20 of U.S. Patent No. 9,335,517, *Wells Fargo Bank v. United Servs. Auto Ass'n*, No. CBM2019-00003 (Nov. 8, 2018).

³⁴⁷ First Amended Complaint, *United Servs. Auto Ass'n* (E.D. Tex. Nov. 28, 2018) (No. 2:18-CV-00245).

³⁴⁸ Order, *United Servs. Auto Ass'n* (E.D. Tex. Jan. 14, 2019) (No. 2:18-CV-00245).

may raise some of the same substantive arguments in a later summary judgment motion.³⁴⁹ In the meantime, USAA moved to compel the deposition of Wells Fargo's expert, Peter Alexander, who submitted a declaration in support of the CBM petitions.³⁵⁰ USAA claimed that it was entitled to depose Alexander because some of his statements were inconsistent with positions that Wells Fargo took in the motion for judgment on the pleadings.³⁵¹

The court ultimately denied the motion as premature since Alexander had not been designated as an expert in the court proceedings.³⁵² Most notable about the court's order, however, was Judge Gilstrap's strong language admonishing the parties for gamesmanship—namely, using the district court to better position themselves before the PTAB.³⁵³ The fact that Wells Fargo failed to renew its motion for judgment on the pleadings, for example, indicated to the court that the § 101 motion had been filed solely for the purpose of uncovering USAA's litigation positions in the CBM proceedings.³⁵⁴

Subsequent to Wells Fargo filing its CBM petitions, the PTO promulgated Revised Patent Subject Matter Eligibility Guidance (PEG).³⁵⁵ Since early 2018, when Andrei Iancu became PTO director, the Office has taken various steps to address the concerns about § 101 raised by the Supreme Court's trilogy of cases—*Mayo*, *Myriad*, and *Alice*—

³⁴⁹ *Id.* at 2 n.3.

³⁵⁰ *Id.* at 1–3.

³⁵¹ *Id.* at 2–3.

³⁵² *Id.* at 3.

³⁵³ Specifically, the order said:

[T]he Court is persuaded that both parties have used (and continue to attempt to use) this Court as a mere tool to better posture their positions as regards the co-pending CBM proceedings before the Patent Trial and Appeal Board The Court does not countenance—in fact this Court is offended by—the strategic use of an Article III Court to gain a tactical advantage in any parallel proceeding. Such [conduct] overtly demonstrates the parties' lack of recognition and reliance on the district court as a deliberative body. Moreover, such gamesmanship reflects a clear lack of respect for the Third Branch of our national government. This Court will not ignore such conduct.

Id. at 4.

³⁵⁴ *Id.*; see also Scott McKeown, *Judge Gilstrap Cautions on Tactics Directed Solely to PTAB Interests*, PATS. POST GRANT (Jan. 21, 2019), <https://www.patentspostgrant.com/judge-gilstrap-cautions-tactics-directed-solely-ptab-interests/#page=1> [<https://perma.cc/QL7Y-5JH8>].

³⁵⁵ 84 Fed. Reg. 50 (Jan. 7, 2019).

mentioned above.³⁵⁶ In short, Iancu and the PTO have tried to make it easier to satisfy the requirements of § 101, and PEG is a continuation of that effort.³⁵⁷ Congress, too, has been working on § 101 reform with a draft bicameral, bipartisan proposal introduced in May 2019 and hearings held in the Senate the following month.³⁵⁸ Among other things, the proposed legislation would eliminate the judicially-created exceptions to § 101.³⁵⁹ Congress also recently reintroduced and held hearings on the STRONGER Patents Act, a bill that would weaken post-grant proceedings, for example by heightening the standard for invalidating a patent at the PTAB and making IPR and PGR available only to parties accused of infringement.³⁶⁰

Getting back to *USAA v. Wells Fargo*, the PTAB ordered USAA and Wells Fargo to submit additional briefing in light of PEG.³⁶¹ On March 20, 2019, Wells Fargo filed an IPR petition with respect to the '090 patent—one of the patents at issue in the first lawsuit—and then moved to dismiss the CBM petition on that patent, which the PTAB granted.³⁶² Around the same time, Wells Fargo petitioned the PTAB to review in a CBM proceeding three of the five USAA RDC Patents at issue in the second lawsuit. Between mid-May and early June, the PTAB denied institution of CBM review for the remaining patents from the first lawsuit

³⁵⁶ See La Belle, *supra* note 92, at 617–18 (explaining how the PTO issued guidance shortly after Iancu took the helm at the PTO clarifying how to apply the *Alice* subject matter test).

³⁵⁷ See, e.g., Aseet Patel & Craig Kronenthal, *First PTAB Reversals Under New Subject Matter Eligibility Guidance*, IPWATCHDOG (Feb. 14, 2019), <https://www.ipwatchdog.com/2019/02/14/first-ptab-reversals-new-subject-matter-eligibility-guidance/id=106312> [https://perma.cc/4CR7-LAMQ] (discussing how Iancu has “led the charge to improve predictability of patent-eligible subject matter”).

³⁵⁸ See Eileen McDermott, *Draft Text of Proposed New Section 101 Reflects Patent Owner Input*, IPWATCHDOG (May 22, 2019), <https://www.ipwatchdog.com/2019/05/22/draft-text-proposed-new-section-101-reflects-patent-owner-input/id=109498> [https://perma.cc/2PDD-9MMQ].

³⁵⁹ *Id.*

³⁶⁰ Support Technology and Research for Our Nation’s Growth and Economic Resilience (STRONGER) Patents Act of 2019, S. 2082, 116th Cong. (2019). See generally *Innovation in America—How Congress Can Make Our Patent System STRONGER: Hearing on S. 2082 Before the Subcomm. on Intell. Prop. of the Comm. on the Judiciary*, 116th Cong. (2019).

³⁶¹ See, e.g., *Wells Fargo Bank v. United Servs. Auto Ass’n*, No. CBM2019-00003 (P.T.A.B. June 3, 2019).

³⁶² *Wells Fargo Bank v. United Servs. Auto Ass’n*, No. CBM2019-00002 (P.T.A.B. Apr. 26, 2019).

(the '779, '571, and '517 patents) on the ground that all three patents fell within the "technological invention" exception to section 18 of the AIA.³⁶³ Wells Fargo responded by immediately filing IPR petitions for those three patents as it had earlier for the '090 patent.³⁶⁴ On August 26, 2019, the PTAB denied institution of IPR for the '090 patent because the board determined that there was not a reasonable likelihood Wells Fargo would prevail in invalidating any of the challenged claims.³⁶⁵ Shortly thereafter, in October 2019, the PTAB denied institution of CBM review for the three patents from the second lawsuit (the '136, '605, and '681 patents) again because those patents fell within the "technological invention" exception to section 18 of the AIA.³⁶⁶ For whatever reason, Wells Fargo did not petition for IPR with respect to these patents as it did for the ones in the first lawsuit. Thus, the only outstanding issue at the PTAB was whether IPR would be instituted on the '779, '571, and '517 patents.

With respect to the litigation, the court issued a claim construction ruling, and the parties engaged in mediation in both cases during this same time period.³⁶⁷ When mediation failed to result in settlement, USAA and Wells Fargo prepared the cases for trial. In the months leading up to

³⁶³ See *Wells Fargo Bank v. United States Auto Ass'n*, No. CBM2019-00004 (P.T.A.B. May 15, 2019); *Wells Fargo Bank v. United States Auto Ass'n*, No. CBM2019-00005 (P.T.A.B. June 3, 2019); *Wells Fargo Bank v. United States Auto Ass'n*, No. CBM2019-00003 (P.T.A.B. June 3, 2019).

³⁶⁴ Petition for Inter Partes Review of Claims 1, 5–10, 12–14, 17–20 of U.S. Patent No. 9,336,517, *Wells Fargo Bank v. United Servs. Auto Ass'n*, No. IPR2019-01081 (P.T.A.B. June 5, 2019) ('517 patent); Petition for Inter Partes Review of Claims 1–13 of U.S. Patent No. 8,977,571, *Wells Fargo Bank v. United Servs. Auto Ass'n*, No. IPR2019-01082 (P.T.A.B. June 5, 2019) ('571 patent); Petition for Inter Partes Review of Claims 1–18 of U.S. Patent No. 8,699,779, *Wells Fargo Bank v. United Servs. Auto Ass'n*, No. IPR2019-01083 (P.T.A.B. June 5, 2019) ('779 patent).

³⁶⁵ *Wells Fargo Bank v. United Servs. Auto Ass'n*, No. IPR2019-00815 (P.T.A.B. Aug. 26, 2019).

³⁶⁶ Matthew Bultman, *USAA E-Check Patents Not Eligible For CBM Review: PTAB*, LAW360 (Oct. 2, 2019, 7:08 PM), <https://www.law360.com/articles/1205350/usaa-e-check-patents-not-eligible-for-cbm-review-ptab> [<https://perma.cc/E4NV-PAKP>].

³⁶⁷ See Report of Mediation, *United Servs. Auto Ass'n v. Wells Fargo Bank* (E.D. Tex. July 30, 2019) (No. 2:18-CV-00245) (mediation); Order, *United Servs. Auto Ass'n v. Wells Fargo Bank* (E.D. Tex. July 9, 2019) (No. 2:18-CV-00245) (claim construction); Order, *United Servs. Auto Ass'n v. Wells Fargo Bank* (E.D. Tex. Aug. 30, 2019) (No. 2:18-CV-00366) (construction); Report of Mediation, *United Servs. Auto Ass'n v. Wells Fargo Bank* (E.D. Tex. July 30, 2019) (No. 2:18-CV-00366) (mediation); Claim Construction Memorandum Opinion and Order, *United Servs. Auto Ass'n v. Wells Fargo Bank* (E.D. Tex. July 29, 2019) (No. 2:18-CV-00366) (claim construction).

trial, the parties filed summary judgment motions, including a motion by Wells Fargo on § 101 grounds, which the court denied in both cases.³⁶⁸ Ultimately, USAA agreed to narrow its claims for trial—only proceeding on some claims of the ‘090 and ‘571 patents in the first trial and some of the claims of the ‘605 and ‘681 patents in the second trial—but explicitly reserved its right to pursue the non-asserted patent claims in a separate trial.³⁶⁹

When trial began in the first case in late October, Wells Fargo’s IPR petition with respect to the ‘571 patent was still pending before the PTAB. After a five-day trial, the jury rendered its verdict finding that Wells Fargo willfully infringed one or more of the asserted patent claims and awarded USAA \$200 million in damages.³⁷⁰ On November 12, the court entered a final judgment on the verdict.³⁷¹ Almost two months later, the second case went to trial, and the jury likewise rendered a verdict that Wells Fargo had willfully infringed one or more of the patent claims at issue.³⁷² Damages in the second suit totaled \$102,792,510, bringing the total amount that Wells Fargo owes USAA to over \$300 million.³⁷³ Notably, Wells Fargo did not pursue an invalidity defense in the first suit for some reason, but it did in the second case and the jury rejected that defense. As expected, Wells Fargo is pursuing post-trial motions, including a motion for judgment as a matter of law and a new trial motion, in both cases.

In the meantime, since the district court entered final judgment in the first case, the PTAB has issued orders granting Wells Fargo’s petition to institute IPR regarding the ‘779, ‘571, and ‘517 patents.³⁷⁴ In so doing, the Board rejected USAA’s argument that it should deny institution in

³⁶⁸ Minutes for Initial Pretrial Conference Held Before U.S. District Judge Rodney Gilstrap, *United Servs. Auto Ass’n* (E.D. Tex. Oct. 17, 2019) (No. 2:18-CV-00245).

³⁶⁹ Plaintiff’s Third Amended Disclosure Narrowing Claims for Purposes of Trial, *United Servs. Auto Ass’n* (E.D. Tex. Oct. 29, 2019) (No. 2:18-CV-00245); Plaintiff’s Second Amended Disclosure Narrowing Claims for Purposes of Trial, *United Servs. Auto Ass’n* (E.D. Tex. Jan. 5, 2020) (No. 2:18-CV-00366).

³⁷⁰ Verdict Form, *United Servs. Auto Ass’n* (E.D. Tex. Nov. 6, 2019) (No. 2:18-CV-00245).

³⁷¹ Final Judgment, *United Servs. Auto Ass’n* (E.D. Tex. Nov. 12, 2019) (No. 2:18-CV-00245).

³⁷² Final Judgment, *United Servs. Auto Ass’n* (E.D. Tex. Jan. 13, 2020) (No. 2:18-CV-00366).

³⁷³ *Id.*

³⁷⁴ Wells Fargo Bank v. United Servs. Auto Ass’n, No. IPR2019-01083 (P.T.A.B. Jan. 9, 2020) (‘779 patent); Wells Fargo Bank v. United Servs. Auto Ass’n, No. IPR2019-01082 (P.T.A.B. Dec. 13, 2019) (‘571 patent); Wells Fargo Bank v. United Servs. Auto Ass’n, No. IPR2019-01081 (P.T.A.B. Jan. 13, 2020) (‘517 patent).

light of the advanced stage of the related litigation because Wells Fargo, as mentioned above, did not pursue an invalidity defense at trial.³⁷⁵ The PTAB has a year from the time of institution to render its decision on the validity of these three patents.³⁷⁶

In addition to the ongoing litigation at the PTAB, Mitek filed a declaratory judgment action against USAA in the Northern District of California on November 1, 2019, seeking a declaration of non-infringement with respect to the '779, '517, '090, and '571 patents.³⁷⁷ USAA responded by filing a motion to dismiss for lack of declaratory judgment jurisdiction on the grounds that there is no evidence that an infringement suit by USAA against Mitek is imminent.³⁷⁸ USAA argued that Mitek's technology was only a part of Wells Fargo's allegedly infringing system, so USAA's claims against Wells Fargo did not create a justiciable case or controversy between USAA and Mitek.³⁷⁹ Alternatively, USAA moved to transfer the case to the Eastern District of Texas because it involved the same patents and same issues involved in the litigation between USAA and Wells Fargo.³⁸⁰ The motion to transfer the case to the Eastern District of Texas was granted on April 23, 2020.³⁸¹

This declaratory judgment suit is notable for a few reasons. First, the timing is odd since it was filed almost a year and a half after USAA sued Wells Fargo and when trial in the first case was already underway.³⁸²

³⁷⁵ See, e.g., *Wells Fargo Bank*, No. IPR2019-01082, at 12–14.

³⁷⁶ 37 C.F.R. § 42.100(c) (2018).

³⁷⁷ Complaint for Declaratory Judgment, *Mitek Sys., Inc. v. United Servs. Auto Ass'n* (N.D. Cal. Nov. 1, 2019) (No. 3:19-CV-07223).

³⁷⁸ United Services Automobile Association's Notice of Motion and Motion to Dismiss or Transfer at 1, *Mitek* (N.D. Cal. Jan. 15, 2020) (No. 3:19-CV-07223) [hereinafter USAA's Motion].

³⁷⁹ *Id.*

³⁸⁰ *Id.*

³⁸¹ Order Granting Defendant's Motion to Transfer; Granting Defendant's Administrative Motion for Leave to File Response; and Overruling Plaintiff's Objection to Reply Evidence, *Mitek* (N.D. Cal. Apr. 21, 2020) (No. 3:19-CV-07223).

³⁸² As USAA had argued in its motion to transfer:

Mitek filed this complaint approximately seventeen months after the USAA-Wells Fargo litigation was filed, and only after the Texas court had construed the claims of the Patents-in-Suit, decided dispositive motions, confirmed that all of the Patents-in-Suit are subject matter eligible under 35 U.S.C. § 101, and a jury trial was already underway.

USAA's Motion, *supra* note 378, at 1.

Second, Mitek only seeks a declaration of noninfringement and not invalidity, much like Wells Fargo only pursued non-infringement defenses in the first case. Perhaps Mitek is not challenging these patents under § 101 because doing so could cast doubt on the patentability of its own RDC patents.³⁸³ Of course, that does not explain why Wells Fargo failed to raise an invalidity defense at the first trial, especially given the patents cannot be challenged on § 101 grounds in the pending IPRs.³⁸⁴ Finally, this declaratory judgment action is a clear attempt by Mitek to forum shop since the Northern District of California—which is where Wells Fargo is headquartered, but not Mitek—is much more hospitable to accused patent infringers than the Eastern District of Texas.³⁸⁵ While forum shopping is not at all unusual in patent cases, this late attempt to find a more favorable forum does raise the question why Wells Fargo made no attempt to transfer out of the Eastern District of Texas, a court with a reputation for being strongly pro-patentee.³⁸⁶

So, for now, we will have to wait and see how this litigation saga among USAA, Wells Fargo, and Mitek ends. Like in many post-AIA patent cases where there is parallel litigation in federal court and at the PTAB, questions about res judicata, estoppel, and the finality of judgments are likely to come up.³⁸⁷ For example, will the infringement verdict against Wells Fargo have any impact on Mitek's declaratory judgment suit on the same patents? Or could Wells Fargo be precluded from litigating its invalidity defense before the PTAB since it could have raised that at trial but did not? That precise issue was before the Supreme Court this past term in *Lucky Brand v. Marcel*, a trademark case in which the U.S. Court of Appeals for the Second Circuit applied "defense preclusion" to bar the Lucky Brand from litigating a defense it could have

³⁸³ See, e.g., Megan M. La Belle, *Public Enforcement of Patent Law*, 96 B.U. L. REV. 1865, 1871 (2016) (explaining how competitors can be reluctant to challenge each other's patents as invalid because they do not want to put their own intellectual property at risk).

³⁸⁴ See *supra* note 83 (patents can only be challenged on 102 and 103 grounds in IPRs).

³⁸⁵ See USAA's Motion, *supra* note 378, at 1.

³⁸⁶ See Megan M. La Belle, *Influencing Juries in Litigation "Hot Spots,"* 94 IND. L.J. 901, 932–33 (2019). See generally Kimberly A. Moore, *Forum Shopping in Patent Cases: Does Geographic Choice Affect Innovation?*, 79 N.C. L. Rev. 889 (2001).

³⁸⁷ See generally Paul R. Gugliuzza, *(In)valid Patents*, 92 NOTRE DAME L. REV. 271 (2016); Saurabh Vishnubhakat, *Renewed Efficiency in Administrative Patent Revocation*, 104 IOWA L. REV. 2643 (2019).

raised in a previous lawsuit.³⁸⁸ Although the Court held that defense preclusion did not apply in *Lucky Brand* because the second case involved different conduct and different claims, it did not preclude the possibility of a party like Wells Fargo being precluded in the future for failing to raise certain defenses when it had the chance.³⁸⁹

VI. THE FUTURE OF FINTECH PATENTS

Whether the financial industry is headed toward a patent war remains uncertain. If the verdicts in favor of USAA are upheld, it is certainly a possibility. But what would a patent war over fintech look like? Perhaps the big banks that become fintech leaders will go to battle over their most valuable patents like Apple and Samsung did with smartphones.³⁹⁰ Or maybe the fintech wars would look fundamentally different because they would not involve direct competitors. Instead, we could see big banks and tech giants going head-to-head in the courtroom to determine who will control the patent rights in the fintech space. That all being said, it is also possible that there will be no patent war at all because Bank of America and others with substantial fintech patent portfolios could decide to utilize their intellectual property in wholly different ways.

A. *Fintech Patent Wars*

As has been discussed at length in this Article, patent wars are not new despite what the common perception may be. Yet, trying to identify a pattern and predict where and when the next patent war will erupt is extremely difficult. Some researchers suggest that certain criteria are key to this analysis, including, but not limited to: number of patents, research and development expenditure, number of NPEs, number of operating

³⁸⁸ Megan La Belle, *Opinion Analysis: Court Unanimously Reverses 2nd Circuit on “Defense Preclusion,” But on Very Narrow Grounds*, SCOTUSBLOG (May 14, 2020, 8:29 PM), <https://www.scotusblog.com/2020/05/opinion-analysis-court-unanimously-reverses-2nd-circuit-on-defense-preclusion-but-on-very-narrow-grounds> [https://perma.cc/DKA4-LEDP].

³⁸⁹ *Id.*

³⁹⁰ See *supra* Section V.A.

companies, and technology inception years.³⁹¹ Others have suggested that, in addition to portfolio strength, the smartphone wars were a result of the size of the market, multiple converging technologies, a highly fragmented industry, and competing standards.³⁹²

But those are not the only factors that contribute to patent wars. Patent wars are often very personal and are caused, at least in part, by individuals who feel that full-scale war is the only option. For example, Steve Jobs infamously told his biographer that he was willing “to go to thermonuclear war” to enforce Apple’s patents.³⁹³ In dramatic fashion, Jobs said he would “spend [his] last dying breath . . . [and] every penny of Apple’s \$40 billion in the bank to right this wrong,” and pledged “to destroy Android, because it’s a stolen product.”³⁹⁴ Aside from Jobs, the determination and competitive spirit of Henry Ford, Thomas Edison, and the Wright brothers undoubtedly influenced the outcome of their respective patent wars.³⁹⁵ The potential presence of a zealous champion for the cause makes predictability even more difficult.

With these criteria in mind, is a fintech patent war likely? The aim of this Article is not to undertake an empirical investigation of this question, but rather to begin the conversation regarding the potential for a fintech patent war and to imagine what such a battle might look like. In our view, consideration of even just a few of the common features of prior patent wars suggests that fintech could indeed be fertile ground for a patent war in the future.

The sheer number of patents related to a particular technology tends to increase the chances of a war erupting.³⁹⁶ As has been discussed, technology companies, banks, and other financial services companies have been building their fintech patent portfolios for more than a decade

³⁹¹ See generally James Bessen & Michael J. Meurer, *The Patent Litigation Explosion*, 45 LOY. U. CHI. L.J. 401 (2013); Malik & Balasubramanian, *supra* note 7 (identifying factors that contribute to patent wars).

³⁹² Ho, *supra* note 12.

³⁹³ WALTER ISAACSON, STEVE JOBS 512 (2011).

³⁹⁴ *Id.*

³⁹⁵ See *supra* Section V.A.

³⁹⁶ See Bessen & Meurer, *supra* note 391, at 429 (explaining how high patenting rates increase the likelihood of litigation).

now.³⁹⁷ These patented inventions run the gamut and include, among other things, blockchain and other distributed ledger technology, mobile payment technology, and cryptocurrencies and other digital assets.³⁹⁸ And it's not just the United States that is focused on fintech, but patent offices and innovators all over the world. The Intellectual Property Office of Singapore, for example, announced in 2018 that it would expedite its processes for granting fintech patents, cementing Singapore's position as the world's leading fintech hub.³⁹⁹ What is more, Chinese innovators are leading the charge on fintech patents, especially those related to blockchain and artificial intelligence;⁴⁰⁰ Ant Financial, the highest-valued fintech firm in the world, is a Chinese company.⁴⁰¹ Japan and Japanese applicants, likewise, have been early adopters of cryptocurrencies and other fintech innovations and have pursued patent applications across the globe.⁴⁰² The bottom line is that many fintech patents have already been issued and the numbers will likely continue to grow in the foreseeable future.

Industry fragmentation, occurring when numerous companies operate in the same space, also contributes to the development of patent wars. Fintech services are provided by companies from around the globe

³⁹⁷ See *supra* Part IV; see also Bruce Berman, *Fintech Patent Competition: Fierce, Diverse, Growing*, IP CLOSEUP (Feb. 1, 2016), <https://ipcloseup.com/2016/02/01/fintech-patent-competition-fierce-diverse-growing/> [<https://perma.cc/XHL4-JH2A>].

³⁹⁸ See *supra* Section IV.B (discussing fintech patent holdings).

³⁹⁹ INTEL. PROP. OFF. OF SING., LAUNCH OF FINTECH FAST TRACK INITIATIVE: AN ACCELERATED FILE-TO-GRANT SERVICE FOR FINANCIAL TECHNOLOGY PATENT APPLICATIONS (2018), [https://www.ipos.gov.sg/docs/default-source/resources-library/patents/circulars/\(2018\)-circular-no-3--launch-of-fintech-fast-track-initiative.pdf](https://www.ipos.gov.sg/docs/default-source/resources-library/patents/circulars/(2018)-circular-no-3--launch-of-fintech-fast-track-initiative.pdf) [<https://perma.cc/B2SY-26EY>].

⁴⁰⁰ Jane Croft, *China Plays Catch-Up with Europe and U.S. in Patents Filing Race*, FIN. TIMES (July 9, 2019), <https://www.ft.com/content/8ecf7464-8d05-11e9-b8cb-26a9caa9d67b> [<https://perma.cc/WHK4-9QUL>]; Laura Noonan, *China Leads Blockchain Patent Applications*, FIN. TIMES (Mar. 25, 2018), <https://www.ft.com/content/197db4c8-2e92-11e8-9b4b-bc4b9f08f381> [<https://perma.cc/XPA9-XUHC>].

⁴⁰¹ See H2 VENTURES & KPMG, 2019 FINTECH 100: LEADING GLOBAL FINTECH INNOVATORS 12 (2019), <https://h2.vc/wp-content/uploads/2020/02/2019Fintech100.pdf> [<https://perma.cc/K92D-FRHK>].

⁴⁰² KILPATRICK TOWNSEND & STOCKTON LLP, TRENDS IN BLOCKCHAIN 25, 30 (2019), https://www.kilpatricktownsend.com/-/media/Feature/Insights/Publication/2019-Patent-Trends-Study_Blockchain.ashx?la=en&hash=4E735DF72581CA986B860747389502256C1AA867 [<https://perma.cc/JJF3-W239>].

that specialize in technology, banking, and other industries. Some of those companies are large and well-established—such as Apple and Visa—while others are startups just getting off the ground.⁴⁰³ In a highly fragmented industry like this, players will look for a way to eliminate competition in order to capture more of the market.⁴⁰⁴ One way to accomplish that is by waging, and ultimately winning, a patent war. More pointedly, companies take patents that were originally acquired as defensive mechanisms (i.e., shields from patent infringement suits) and turn them into swords to either extract high rents from competitors or quash them completely.⁴⁰⁵

The length of time it takes for a technology to penetrate the market can also influence whether a patent war will erupt around that innovation. The faster consumers adopt a particular technology, the more likely companies will turn to litigation in order to reap the benefits.⁴⁰⁶ The penetration rate for smartphones, for example, is shaping up to be one of the fastest—if not the fastest—in history.⁴⁰⁷ While it's too soon to know exactly how quickly certain fintech technologies will spread, there are indicators that it won't take very long especially in certain parts of the world. One recent study shows that fintech adoption rates in six markets (Australia, Canada, Hong Kong, Singapore, United Kingdom, and United States) increased from 16% to 60% on average between 2015 and 2019.⁴⁰⁸ While that increase is remarkable, fintech is penetrating even faster in emerging markets like China, India, Russia, and South Africa, which

⁴⁰³ See Jeff Kauflin, *The 10 Biggest Fintech Companies in America 2020*, FORBES (Feb. 12, 2020, 9:23 AM), <https://www.forbes.com/sites/jeffkauflin/2020/02/12/the-10-biggest-fintech-companies-in-america-2020/#80ad2e81259f> [https://perma.cc/F7JM-RSNM]; see also *supra* Section IV.B (discussing the industry participants in fintech).

⁴⁰⁴ Shaver, *supra* note 280, at 1892.

⁴⁰⁵ *Id.* (“As an industry matures . . . dominant players convert their [patents] into weapons to eliminate their competition.”); Colleen Chien, *A Race to the Bottom*, INTELL. ASSET MGMT. 10, 11 (Jan./Feb. 2012) (“Patents acquired to shield their owners have ironically ended up being used as swords in the hands of others.”).

⁴⁰⁶ Malik & Balasubramanian, *supra* note 7, at 127.

⁴⁰⁷ Michael DeGusta, *Are Smart Phones Spreading Faster Than Any Technology in Human History?*, MIT TECH. REV. (May 9, 2012), <https://www.technologyreview.com/s/427787/are-smart-phones-spreading-faster-than-any-technology-in-human-history> [https://perma.cc/XJX3-NH4S].

⁴⁰⁸ EY, GLOBAL FINTECH ADOPTION INDEX 2019 8 (2019), https://www.ey.com/en_us/ey-global-fintech-adoption-index [https://perma.cc/L4K2-ETF2].

boast adoption rates greater than 80%.⁴⁰⁹ This growth is attributable to many factors, but one key difference is that incumbent financial institutions (e.g., banks, insurers, and stock brokers) are much more active in the fintech market than just a few years ago.⁴¹⁰ Assuming this trend continues, a patent war could very well be on the horizon.

Finally, fintech may be the type of technology that people are willing to go to war over for more personal reasons. Even without a zealot like Steve Jobs or Henry Ford, others could emerge as champions for fintech and ultimately play an important role in a patent war. As has been discussed, the story of fintech is complicated, and we lack consensus on precisely what constitutes fintech.⁴¹¹ For many, however, the defining characteristic of fintech and what makes it revolutionary is its ability to democratize financial services.⁴¹² Consumers who previously were shut out of certain markets—say lending and financial advising—now have access because of technologies like digital crowdfunding and robo-advisors.⁴¹³ Bitcoin and other cryptocurrencies are similarly inclusive and intended to provide greater economic freedom to consumers.⁴¹⁴ Even the introduction of bitcoin technology—through a pseudonymous white paper distributed on a cryptography listserv—embodies this democratizing principle.⁴¹⁵ Because this ethos about fintech is so pervasive, attempts to limit access to cryptocurrencies, blockchain, and

⁴⁰⁹ *Id.* at 7–8.

⁴¹⁰ *Id.* at 8.

⁴¹¹ See *supra* Section IV.A (discussing definitions of fintech).

⁴¹² See Omarova, *supra* note 3, at 782 (“[F]intech is often praised for its unprecedented potential to make financial markets more inclusive and equally accessible.”); see also EUR. SUPERVISORY AUTHORITIES, JOINT COMMITTEE DISCUSSION PAPER ON AUTOMATION IN FINANCIAL ADVICE 16 (2015), https://www.esma.europa.eu/sites/default/files/library/jc_2015_080_discussion_paper_on_automation_in_financial_advice.pdf [<https://perma.cc/5P2Y-87P4>] (explaining that fintech is considered a means to “democratise access to financial advice”).

⁴¹³ Omarova, *supra* note 3, at 782.

⁴¹⁴ *Id.*; see also Billy Bambrough, *Coinbase Is Working on Some Exciting New Bitcoin Tech*, FORBES (Dec. 28, 2019, 12:59 AM), <https://www.forbes.com/sites/billybambrough/2019/12/28/coinbase-is-working-on-some-exciting-new-bitcoin-tech/#40d11c497752> [<https://perma.cc/877E-9T4H>].

⁴¹⁵ Sophie Bearman, *Bitcoin’s Creator May Be Worth \$6 Billion—But People Still Don’t Know Who It Is*, CNBC (Oct. 27, 2017, 12:08 PM), <https://www.cnbc.com/2017/10/27/bitcoins-origin-story-remains-shrouded-in-mystery-heres-why-it-matters.html> [<https://perma.cc/H4AX-GEJE>]; Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System*, BITCOIN (2008), <https://bitcoin.org/bitcoin.pdf> [<https://perma.cc/MGG4-6EEA>].

related technologies through patent enforcement would probably be met with strong resistance and could result in a full-scale war.

Let's assume these or other relevant factors converge, and a patent war erupts. What might that war look like? There are at least three scenarios that should be considered. First, there may be a "traditional" patent war between direct competitors like we saw with smartphones, sewing machines, and airplanes. Perhaps *USAA v. Wells Fargo* is just the beginning, and additional infringement suits against other financial institutions using similar RDC technology will follow if the verdicts for *USAA* are upheld.⁴¹⁶ Or a war could break out between direct competitors over a totally different financial technology. Bank of America, for instance, has not only been building its blockchain portfolio for several years now, it also appears to be focused on developing blockchain products.⁴¹⁷ But one of Bank of America's direct competitors, JP Morgan Chase, is being even more aggressive in this area.⁴¹⁸ JP Morgan is devoting a lot of money and human resources to fintech, and announced last year that it is launching a blockchain-based digital currency called JPM Coin.⁴¹⁹ JP Morgan has acquired some blockchain patents along the way, but its portfolio pales in comparison to Bank of America's.⁴²⁰ So, is a

⁴¹⁶ See Brandy Bruyere, *Update on USAA RDC Litigation*, NAFCU (Nov. 20, 2019), <https://www.nafcu.org/compliance-blog/update-usaa-rdc-litigation> [https://perma.cc/73QS-XB48] ("Given this recent win, USAA may be emboldened to increase its efforts to secure licensing fees from financial institutions that the bank believes are improperly using its patented technology, including credit unions.").

⁴¹⁷ Nathan DiCamillo, *Bank of America Is Now Hiring in Blockchain, Not Just Filing Patents*, COINDESK (Oct. 15, 2019, 2:46 PM), <https://www.coindesk.com/bank-of-america-is-now-hiring-in-blockchain-not-just-filing-patents> [https://perma.cc/N6VL-5F34]; see Hugh Son, *Bank of America Tech Chief Is Skeptical on Blockchain Even Though BofA Has the Most Patents for It*, CNBC (Mar. 26, 2019, 8:39 AM), <https://www.cnbc.com/2019/03/25/bank-of-america-skeptical-on-blockchain-despite-having-most-patents.html> [https://perma.cc/TWC5-KK9J].

⁴¹⁸ Benjamin Powers, *JP Morgan and BofA Lead Race for Blockchain Banking Supremacy*, BREAKER MAG. (Mar. 29, 2019), <https://breakermag.com/jpmorgan-and-bofa-lead-race-for-blockchain-banking-supremacy> [https://perma.cc/3KNK-A3VQ].

⁴¹⁹ Suleman Din, *5 Things JPM Coin Will Do for Banking and Blockchain*, AM. BANKER, <https://www.americanbanker.com/list/5-things-jpm-coin-will-do-for-banking-and-blockchain> [https://perma.cc/XH37-G7AN]; Madhvi Mavadiya, *Stop Calling JPMorgan's JPM Coin a Cryptocurrency, Because It's Not*, FORBES (Feb. 17, 2019, 11:13 AM), <https://www.forbes.com/sites/madhvimavadiya/2019/02/17/jp-morgans-cryptocurrency-jpm-coin-is-not-a-cryptocurrency/#2ac8cdf521d1> [https://perma.cc/6ANY-W6PF]; Powers, *supra* note 418.

⁴²⁰ Powers, *supra* note 418 (explaining that BofA has eighty-two blockchain patents while JP Morgan has only six).

patent war between Bank of America and JP Morgan Chase imminent? Only time will tell whether these or other direct competitors will go head-to-head over fintech or whether a patent war in this space might take on a different character.

One possibility is that a war will break out, but not between direct competitors. Instead, because companies from different industries are developing and using similar financial technologies, we could see a battle between a major high-tech company, say Apple or Google, and a big bank like JP Morgan or Bank of America. James Bessen and Michael Meurer have suggested that patent litigation is relatively common when firms do not directly compete with each other for at least two reasons.⁴²¹ First, the more industries involved with a technology, the more patents there will be; this makes it more difficult to become aware of all of the relevant patents and avoid infringement.⁴²² Second, firms in the same industry have to interact with each other regularly and therefore are more inclined to settle a patent dispute. When indirect competitors are involved, on the other hand, parties are less concerned about their future dealings and therefore more willing to fight it out in court.⁴²³ In an inter-industry patent dispute, there is also the possibility that firms in one industry are better versed in patents and patent litigation than firms in another industry and can exploit that disparity to gain an advantage. High-tech companies like Apple have far more experience than financial institutions with enforcing patents and defending against infringement claims,⁴²⁴ so that certainly could impact how a future patent war might play out.

A third type of patent war that could develop would pit large and established operating companies—either in the financial or high-tech industry—against small fintech companies or startups. In this scenario,

⁴²¹ Bessen & Meurer, *supra* note 391, at 427–28.

⁴²² *Id.*

⁴²³ *Id.*

⁴²⁴ Apple is a repeat player in patent litigation. In addition to its prolonged litigation with Samsung, Apple has recently been involved in major patent disputes with Qualcomm and CalTech. See Matthew Bultman, *\$1.1 Billion CalTech Infringement Win Shows Patent Board Perils*, BLOOMBERG L. (Feb. 7, 2020, 6:00 AM), https://www.bloomberglaw.com/product/blaw/document/XA0NCFB8000000?criteria_id=bb90cefe866531f5d97562cc594ef7df&searchGuid=34825c17-62b1-4c1b-ac25-7fad9be61b6 [https://perma.cc/EB9S-8324]; Tripp Mickle & Asa Fitch, *Apple, Qualcomm Agree to Drop All Patent Litigation*, WALL ST. J. (Apr. 16, 2019, 8:15 PM), <https://www.wsj.com/articles/the-apple-qualcomm-courtroom-showdown-kicks-off-11555426610> [https://perma.cc/YAD9-M5DF].

incumbents sue disruptors primarily to suppress competition and maintain market share, or in some cases, to generate licensing fees.⁴²⁵ Either way, big companies leverage their greater resources and patent experience to gain a competitive edge, sometimes even when their infringement claims are not particularly strong—a litigation tactic Ted Sichelman refers to as “patent bullying.”⁴²⁶ This is precisely what happened in the telecommunications industry more than a decade ago when Verizon, Sprint, and AT&T sued startup Vonage for patent infringement over its Voice over Internet Protocol (VoIP) technology.⁴²⁷ In the early 2000s, VoIP was hailed as the “new and hot and disruptive technology,” and Vonage was called a trailblazer that would shape the future of the telecommunications industry.⁴²⁸ Yet, after losing a series of patent infringement suits, Vonage’s market position took a major hit, and the company never managed to recover.⁴²⁹ Vonage’s VoIP and financial innovations like blockchain offer clear parallels. Both are disruptive technologies that are expected to transform an industry. Of course, blockchain might turn out to be “the most overhyped’ technology in history,” as economist Nouriel Roubini claims.⁴³⁰ But if key fintech innovators fall victim to patent bullies like Vonage did, we may never find out.

B. *Alternatives to Patent War*

This Article thus far has focused on the possibility of a fintech patent war and has offered some suggestions about what that could look like. We recognize, however, that a full-blown war over fintech patents is not predetermined and things may play out differently in the end. However, even if fintech patent owners decide not to enforce their intellectual

⁴²⁵ Ted Sichelman, *The Vonage Trilogy: A Case Study in “Patent Bullying,”* 90 NOTRE DAME L. REV. 543 (2014).

⁴²⁶ *Id.* at 551–53. Sichelman warns against the anti-competitive effects of patent bullying and recommends further study, especially given that a substantial portion of patent cases are brought by large patent owners against much smaller defendants. *Id.* at 575–77.

⁴²⁷ *Id.* at 553–73.

⁴²⁸ John Blevins, *Death of the Revolution: The Legal War on Competitive Broadband Technologies*, 12 YALE J.L. & TECH. 85, 116 (2010) (internal quotations omitted).

⁴²⁹ Sichelman, *supra* note 425, at 551–52.

⁴³⁰ Son, *supra* note 417.

property rights through litigation, patents are likely to influence the development of this nascent industry in other ways.

By amassing patents on the same or similar fintech products, Visa, Bank of America, and others are potentially creating what is known as a patent thicket. A patent thicket is “a dense web of overlapping intellectual property rights that a company must hack its way through in order to actually commercialize new technology.”⁴³¹ Patent thickets tend to emerge where a product incorporates numerous technologies, there are overlapping patent rights, and it can be difficult to determine whose patent protects which aspect of the technology.⁴³² When competitors own roughly equal numbers of patents, they tend to deal with patent thickets by creating patent pools and other types of cross-licensing arrangements.⁴³³ Whether patent thickets and cross-licensing arrangements are good or bad for innovation is hard to say. Some claim they drive up transaction costs, create backlog at the PTO, and result in too many low-quality patents.⁴³⁴ Others argue that the “patent arms race” actually increases innovation by encouraging patenting, and decreases prices because cross-licensing allows more players to enter the market.⁴³⁵ Without wading into that debate, it is clear that fintech companies will have to navigate this patent thicket problem in order to commercialize their products.

How the patent thicket problem is resolved will depend largely on who owns the patents and who wants to commercialize their products. If most of the patents are owned by operating companies, they will likely enter into cross-licensing agreements.⁴³⁶ Things become more complicated, however, if a lot of the patents—or at least some key patents—are owned by NPEs. In that case, the NPE has no need for a

⁴³¹ Shapiro, *supra* note 271, at 120.

⁴³² Mossoff, *supra* note 272, at 166–67.

⁴³³ Chien, *supra* note 405, at 14 (“Defensive patenting works best when the parties are equally matched, with portfolios that cover each other’s products.”).

⁴³⁴ *Id.* at 13–16.

⁴³⁵ Jonathan M. Barnett, *Has the Academy Led Patent Law Astray?*, 32 BERKELEY TECH. L.J. 1313, 1341–42, 1379–80 (2017).

⁴³⁶ John DeQ. Briggs, *Intellectual Property and Antitrust: Two Scorpions in a Bottle*, 10 SEDONA CONF. J. 65, 81 (2009) (“[C]ross licenses allow firms operating within a patent ‘thicket’ to use each other’s patented technology without the risk of litigation, including the risk of an injunction that could shut down production.”).

cross-license since it does not plan to commercialize the invention. That gives the NPE the upper hand and the ability to engage in patent “holdup,” meaning it can demand a high royalty rate for a license.⁴³⁷ We know that one of the major fintech patents owners, Bizmodeline, is an NPE,⁴³⁸ and there are likely other NPEs acquiring these kinds of patents to be asserted down the road. If the rents demanded by NPEs are too high, those patents will have to be challenged. Of course, with the impending sunset of CBM, accused infringers will be left with fewer options for invalidating these NPE patents at the PTAB, so tackling “holdup” situations will be harder.

Patent thickets can also pose problems for smaller innovators that hope to commercialize a product but have few to no patents of their own. For starters, small companies might decide the patent thicket is simply too difficult to navigate and forego entrance into the market, thereby stifling competition.⁴³⁹ As for those small firms that do try to secure the necessary licenses, they may be priced out of the market because patent owners with large portfolios can charge exorbitant prices.⁴⁴⁰ Patents, in other words, may serve as obstacles to market entry for fintech startups even in the absence of litigation.

Finally, what about small fintech innovators that own patents and hope to commercialize their products? As an initial matter, patents are vitally important for companies trying to attract investors and secure venture capital.⁴⁴¹ Thus, fintech startups are likely to have at least some patents. If those patents turn out to be valuable, they may be able to

⁴³⁷ Thomas F. Cotter, Erik Hovenkamp & Norman Siebrasse, *Demystifying Patent Holdup*, 76 WASH. & LEE L. REV. 1501, 1501 (2019) (“Patent holdup can arise when circumstances enable a patent owner to extract a larger royalty ex post than it could have obtained in an arms length transaction ex ante.”).

⁴³⁸ See *supra* note 255 and accompanying text.

⁴³⁹ Gregory Day, *Competition and Piracy*, 32 BERKELEY TECH. L.J. 775, 806–07 (2017) (“Often times a patent thicket compels rival companies to refrain from entering the market all together, stifling competition and innovation.”).

⁴⁴⁰ Marshall Leaffer, *Patent Misuse and Innovation*, 10 J. HIGH TECH. L. 142, 163 (2010) (“A firm with a large patent portfolio enveloping a competitor’s key technologies . . . has the potential to use it to suppress competition in the ultimate goods market.”).

⁴⁴¹ See, e.g., Richard D. Harroch & Melissa Guzy, *10 Key Issues for Fintech Startup Companies*, FORBES (Oct. 12, 2019, 2:00 PM), <https://www.forbes.com/sites/allbusiness/2019/10/12/fintech-startup-companies-key-challenges/#4e1440893e45> [<https://perma.cc/YJ7T-D8PK>] (noting that investors will want to know what patents startups own).

license them. Sometimes, however, such licensing efforts are rebuffed, especially by larger companies that have deeper pockets and don't believe the patent owner will sue.⁴⁴² When this happens—a phenomenon referred to as “hold-out” or “reverse hold-up”—the only choice is litigation, which is too expensive for many small patent owners to pursue.⁴⁴³ So, the patent owner either does nothing or sells the patent to an NPE with greater resources to enforce the patent—neither of which is ideal.⁴⁴⁴ Perhaps a better outcome is when large firms acquire small innovators with valuable intellectual property. Although consolidation has potential downsides, namely reducing competition,⁴⁴⁵ it may be the best choice for a small company. Indeed, consolidation in the fintech industry is well underway with two major transactions in just the past couple months—Visa acquiring Plaid for \$5.3 billion and Morgan Stanley acquiring E*Trade for \$13 billion.⁴⁴⁶ Although it is unclear what role, if any, intellectual property played in those particular transactions, there is a good chance that patent rights will influence fintech consolidation in the near future.

CONCLUSION

Imagine what would happen if Satoshi Nakamoto held patents (under an alias of the alias, of course) of key components of blockchain technology. A patent war between Nakamoto and, say, Bank of America might just rival the personal vendetta that Steve Jobs held over Samsung. Nakamoto would spare no expense (financed with bitcoin) in keeping the

⁴⁴² Colleen V. Chien, *Holding Up and Holding Out*, 21 MICH. TELECOMM. & TECH. L. REV. 1, 1–2, 21–23 (2014).

⁴⁴³ *Id.* at 20–22.

⁴⁴⁴ *Id.* at 24.

⁴⁴⁵ See, e.g., Erin C. Fuse Brown & Jaime S. King, *The Double-Edged Sword of Health Care Integration: Consolidation and Cost Control*, 92 IND. L.J. 55, 75 (2016) (“Even when providers have the right motives for integrating, when large conglomerates gain market power, they tend to use it to command higher prices.”).

⁴⁴⁶ Daren Fonda & Andrew Bary, *Wall Street Is Taking Over Main Street. Morgan Stanley's Deal for E*Trade Heats Up the Race*, BARRON'S (Feb. 21, 2020, 9:29 PM), <https://www.barrons.com/articles/what-morgan-stanleys-e-trade-deal-says-about-wall-street-51582338540> [<https://perma.cc/34Q4-J4YP>]; Cara Lombardo & AnnaMaria Andriotis, *Visa to Pay \$5.3 Billion for Fintech Startup*, WALL ST. J. (Jan. 13, 2020, 7:20 PM), <https://www.wsj.com/articles/visa-nears-deal-to-buy-fintech-startup-plaid-11578948426> [<https://perma.cc/UD29-Y7VY>].

blockchain revolution from the clutches of the bloated legacy rival. A patent war between Bank of America and JP Morgan could also be dramatic but might more likely end in a settlement, a pooled arrangement, or, perhaps, a merger of the two banks. A fintech patent war between Bank of America and Apple might be the most interesting of all, pitting the power of finance against the power of technology. We'd probably bet on the tech giant to win that one. Either way, a fintech patent war could change finance and technology forever.