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Private Value Determinations and the Potential Effect on the Future of Research and Development

Amy L. Landers*

INTRODUCTION

Although the promise of an emerging patent market is thought to provide future benefits to invention, innovation, and the public, this Article examines the possibility that the aggregate influence of this activity could instead destabilize patent values in a manner that mirrors the “bubble” phenomenon that occurred in certain markets in the past. To the extent that this occurs, this would have negative consequences for the future of investment in research, development, and innovation.¹

Although a patent market has been said to be in the emerging stages, none exists at this time.² The attributes of a well-functioning market are not present, including accepted methods for determining price, a system to connect buyers/licensees with sellers/licensors, liquidity, and minimal transaction costs. If such a market becomes established, it might lead to rational private ordering for intellectual property asset trades. In theory, such a market might facilitate information sharing, collaboration, commercialization, and invention. Yet there are reasons to consider that a socially desirable market might not materialize as anticipated.

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¹ Based on the current state of available information, it is not possible to fully evaluate whether there is an overall distortion for patent licensing. At present, there is only interstitial pricing information available. Patent assertion entities do not disclose specifics, license agreements are largely confidential, and there are few comparators. Indeed, it appears that some entities go to great lengths to shield the confidentiality of the terms of these agreements. See Patrick Anderson, *Micron Retains Interest in Round Rock Patent Monetization Proceeds*, GAMETIME IP (May 9, 2012), <http://gametimeip.com/2012/05/09/micron-retains-interest-in-round-rock-patent-monetization-proceeds>.

² See Mark A. Lemley & Nathan Myhrvold, *How to Make a Patent Market*, 36 HOFSTRA L. REV. 257 (2007); see also Lucia Karina Alvarado, *The Patent Transactions Market – Established and Emerging Business Models* 7 (2010) (Master's thesis, Chalmers University of Technology) (on file with Department of Technology Management and Economics, Chalmers University of Technology).

As Hyman Minsky has theorized, some markets become subject to a form of instability that leads to incoherence.³ This might occur even in the absence of any mismanagement, fraud, or wrongful conduct. Damaging volatility can occur due to frictions, which can include that which exists between the private wealth-maximizing interests of individuals on one hand, and the public interest on the other. Further, the impact of such incoherence can create second-order effects that reach outside the core activity in which this incoherence occurs. This can take any of numerous forms, up to and including impacts that harm employment, invention, investment, and innovation.

First, this Article draws on the existing literature to establish a working definition of bubbles, both economic and non-economic. Second, these principles are applied to the case of Bitcoin to illustrate how these theories might be applied to an asset that lacks widely accepted, objective price anchors. Third, this work considers how these principles might be applied to an emerging market for patents.

I. THE IRRATIONAL EXUBERANCE OF BUBBLES

A. Economic Bubbles: A Brief Primer

The field of neoclassic economics assumes that agents are rational and markets are efficient. Under this theory, well-informed arbitragers correct mispricing when it occurs.⁴ In this theoretical world, the individual pursuit of self-interest is said to best serve the public interest by maximizing welfare.⁵ Under economic theory, the price of an asset has a rational connection to future cash flows, subject to reasonable variations.⁶ The behavior that is responsible for bubbles is at odds with these assumptions. Episodes that range from the Dutch tulip mania in the 1630s up to the recent bursting of the subprime mortgage market shed doubt on the idea that the rationality assumption can be applied to all markets. To explain this behavior, economists have turned to psychology, sociology, and political

³ See HYMAN P. MINSKY, *STABILIZING AN UNSTABLE ECONOMY* 11 (2008).

⁴ See Dilip Abreu & Markus K. Brunnermeier, *Bubbles and Crashes*, 71 *ECONOMETRICA* 173 (2003).

⁵ See Joseph E. Stiglitz, *The Invisible Hand and Modern Welfare Economics* 1 (Nat'l Bureau of Econ. Research, Working Paper No. 3641, 1991). The field of economics' limited sphere of influence on the operation of the law has been explored by others. See, e.g., Richard A. Posner, *Utilitarianism, Economics, and Legal Theory*, 8 *J. LEGAL STUD.* 103-40 (1979).

⁶ See Jeremy J. Siegel, *What Is an Asset Price Bubble? An Operational Definition*, 9 *EUR. FIN. MGMT.* 11, 12 (2003); see also PETER M. GARBER, *FAMOUS FIRST BUBBLES: THE FUNDAMENTALS OF EARLY MANIAS* 4 (2000).

science to formulate a literature that examines the bubble phenomenon.

The richest source of this literature focuses on the pricing bubble, which is defined as “an upward price movement over an extended [range] . . . that then implodes.”⁷ An alternative definition holds that bubble pricing is “a sharp rise in [the] price of an asset or a range of assets in a continuous process, with the initial rise generating expectations of further rises and attracting new buyers—generally speculators interested in profits from trading in the asset rather than its use or earning capacity.”⁸ The key points of commonality underlying these descriptions is that a bubble occurs when the price of the asset is higher than justified by its intrinsic value when referenced against its underlying fundamentals. For a typical commodity, fundamental price drivers might include supply scarcity, increased demand, changes in consumer income levels, overall consumer confidence, and employment levels. In contrast, bubble asset prices are driven by the irrational expectation that the asset’s price will continue to rise merely because prices have done so in the past. As an example, “[d]uring a housing price bubble, homebuyers think that a home that they would normally consider too expensive for them is now an acceptable purchase because they will be compensated by significant further price increases.”⁹ If the home is resold, this anticipation drives the sales price upward. Where these expectations are prevalent within a substantial portion of the market, all home prices rise. Where prices consistently and significantly depart above a level that can be sustained in the long term, in the absence of an alternative explanation, a bubble exists. Inevitably, the supply of buyers that are willing or able to pay ever-increasing prices disappears.

Bubbles can form if buyers are willing to pay an increase based on the mere expectation of turning a profit through resale.¹⁰ In the end, these successive price increases are revealed to be unsustainable, for example when “people buy houses because they expect home prices to keep rising at a pace that would eventually leave nobody able to buy a first home.”¹¹ Such cycles cannot manifest profits over the long term, because these

⁷ CHARLES P. KINDLEBERGER & ROBERT Z. ALIBER, *MANIAS, PANICS, AND CRASHES: A HISTORY OF THE FINANCIAL CRISES* 29 (5th ed., 2005).

⁸ 1 PALGRAVE MACMILLIAN, *THE NEW PALGRAVE: A DICTIONARY OF ECONOMICS* 281 (John Eatwell et al. eds., 1998).

⁹ Karl E. Case & Robert J. Shiller, *Is There a Bubble in the Housing Market?*, 2003 BROOKINGS PAPERS ON ECON. ACTIVITY, no. 2, at 299, 299.

¹⁰ *See id.*

¹¹ Paul Krugman, *Things that Aren't Bubbles*, N.Y. TIMES (Oct. 22, 2012, 9:54 AM), <http://krugman.blogs.nytimes.com/2012/10/22/things-that-arent-bubbles>.

circumstances are akin to the final phase of a Ponzi scheme, where the pricing structure is doomed to collapse when the supply of buyers disappears. Certainly, a bubble is not formed simply because of a dramatic price increase. As economists Kindleberger and Aliber explain, a sharp rise in oil prices based on legitimate concerns over political instability in the Middle East is an increase driven by anticipated scarcity, which is a legitimate price driver.¹² Even if the oil shortage never materializes, the price rise is not considered subject to bubble pricing because the initial concern is a traditional price driver.¹³

If markets are populated with rational actors, why do bubbles occur? Economist Robert J. Shiller, who coined the phrase “irrational exuberance,” proffers this explanation:

[It is] a situation in which news of price increases spurs investor enthusiasm, which spreads by psychological contagion from person to person, in the process amplifying stories that might justify the price increases and bringing in a larger and larger class of investors, who, despite doubts about the real value of an investment, are drawn to it partly through envy of others’ successes and partly through a gambler’s excitement.¹⁴

As one source described, “There is nothing as disturbing to one’s well-being and judgment as to see a friend get rich. Unless it is to see a non-friend get rich.”¹⁵ The apparent success stories of the early entrants, sometimes spread through the media, help fuel others’ interest in participating.¹⁶ Yet the circumstances that create bubbles are challenging to specify. Although Shiller’s assessment seems to ring true in numerous examples of past bubble markets, others have formed despite the presence of buyer optimism.¹⁷

¹² See CHARLES P. KINDLEBERGER & ROBERT Z. ALIBER, *MANIAS, PANICS, AND CRASHES: A HISTORY OF FINANCIAL CRISES* 14 (6th ed., 2011).

¹³ See GARBER, *supra* note 6, at 124 (“Before we relegate a speculative event to the fundamentally inexplicable or bubble category . . . we should exhaust the reasonable economic explanations.”).

¹⁴ ROBERT J. SHILLER, *IRRATIONAL EXUBERANCE* 2 (2nd ed. 2005); see also KINDLEBERGER & ALIBER, *supra* note 12, at 30 (describing the actions of speculators in “irrational exuberance” and how speculation leads “from normal, rational behavior to . . . ‘mania’ or a ‘bubble’”).

¹⁵ KINDLEBERGER & ALIBER, *supra* note 12, at 30 (quoting JAMES B. STEWART, *DEN OF THIEVES* 97 (1992)).

¹⁶ See SHILLER, *supra* note 14, at 105 (“[T]he news media are fundamental propagators of speculative price movements through their efforts to make news interesting to their audience.”).

¹⁷ See generally Jörg Oechssler, Carsten Schmidt & Wendelin Schnedler, *On the Ingredients for Bubble Formation: Informed Traders and Communication*, 35 J. ECON. DYNAMICS & CONTROL 1831 (2011). “[B]ubbles occur even in a very austere environment without any of the features mentioned by Shiller.” Jörg Oechssler et al., *On the Ingredients for Bubble Formation: Informed Traders and Communication* 2 (University of

Where it exists, irrational exuberance does not have to be uniform across an entire population to fuel a bubble's creation. Mispricing can be attributed to those who "generally seem to form expectations by extrapolating past price patterns and by myopically updating these expectations based on their own forecast errors in the previous period or market."¹⁸ However, other participants include sophisticated sources that "understand the [asset's] fundamental value, but speculate on being able to resell assets they own for a price in excess of fundamental value."¹⁹ These participants, who are aware of the pricing vulnerabilities, remain in the market to ride the bubble to extract profits as long as possible, hoping to exit prior to the crash.

Thus, certain bubble markets are populated with two types of investors: insiders and outsiders.²⁰ According to this theory, "[t]he insiders destabilize by driving the price up and then sell at or near the top to the outsiders."²¹ Yet timing one's exit is notoriously difficult, even for those with experience. As one veteran manager of an \$8.2 billion fund responded, when asked the reasons that he failed to exit the Internet stock bubble earlier than he did, "We thought it was the eighth inning, and it was the ninth."²²

Further, economist Edward Miller points out that, under certain circumstances, a mere *difference of opinion* about an asset's valuation can be sufficient to skew prices off of a rational fundamental mark.²³ Although the reasons are complex, at a general level optimists prefer to invest despite high prices, because such buyers anticipate further growth.²⁴ Those with rational expectations, or pessimistic ones, decline to invest at all. Miller theorizes that this imbalance of preferences among buyers and sellers leads the asset to become overvalued because the

Heidelberg, Working Paper, 2007), available at <http://www.uni-heidelberg.de/md/awi/professuren/with2/oss.pdf>.

¹⁸ Stefan Palan, *A Review of Bubbles and Crashes in Experimental Asset Markets*, 27 J. ECON. SURVEYS 570, 574 (2013); see also Abreu & Brunnermeier, *supra* note 4, at 173.

¹⁹ Palan, *supra* note 18, at 575; see also Abreu & Brunnermeier, *supra* note 4, at 174.

²⁰ KINDLEBERGER & ALIBER, *supra* note 12, at 46.

²¹ *Id.*

²² Abreu & Brunnermeier, *supra* note 4, at 175 (quoting Stanley Druckenmiller, manager of George Soros's fund).

²³ See Edward M. Miller, *Risk, Uncertainty, and Divergence of Opinion*, 32 J. FIN. 1151, 1155 (1977); see also Oechssler, Schmidt & Schnedler, *supra* note 17, at 1832 (demonstrating that the *mere possibility* that some traders have superior information to others can create an adequate environment for bubble formation).

²⁴ Some conditions that must be present include short sale constraints and circumstances wherein the entire supply of the security can be absorbed by a number of optimistic purchasers.

prices reflect the preference of the optimists without the countervailing balance that pessimists would otherwise provide.

B. The Pricing Bubble Trajectory

Bubbles have been said to follow a characteristic timeline.²⁵ Typically, the process starts with some type of trigger or “displacement” of a magnitude sufficient to affect at least one sector of the economy. This might be a new innovation, a new asset class, or other event that creates the apparent opportunity for profit.²⁶ At first, the new opportunity may operate in the market like any other commodity. However, unlike more stable assets, those subject to bubble behavior can experience a rise in prices or expansion of the opportunity, as an increasing number of persons become speculators, resellers, or otherwise engaged in supporting the opportunity.²⁷ The larger and continued engagement drives demand and prices upwards toward the unsustainable level.²⁸

Shiller suggests that a “new economy” mindset appears to be widely prevalent during bubble periods.²⁹ That is, people appear to be more optimistic, believe that they are part of a “new era” and that “the future is brighter or less uncertain than it was in the past.”³⁰ Thus, “speculation is linked with positive economic expectations, in particular in new and emerging markets and market segments.”³¹ According to another source, “[t]he authorities recognize that something exceptional is happening and while they are mindful of earlier manias, ‘this time it’s different’, and they have extensive explanations for the difference.”³² For the technology stock bubble of the 1990s, there was a lottery aspect where some buyers believed that their choice stocks were the winners. This masked the fact that all stocks were overpriced in the aggregate, because buyers believed in the possibility (however remote) that their specific stock pick had the probability of becoming the next high performer. Perhaps for this reason, in most circumstances, incoherent pricing trends are notoriously difficult to identify as problematic until after a crash

²⁵ See KINDLEBERGER & ALIBER, *supra* note 12, at 27–31.

²⁶ See *id.* at 27–29.

²⁷ *Id.* at 30–31.

²⁸ *Id.* at 30.

²⁹ SHILLER, *supra* note 14, at 31.

³⁰ *Id.* at 106.

³¹ Gunther Schnabl & Andreas Hoffmann, *Monetary Policy, Vagabonding Liquidity and Bursting Bubbles in New and Emerging Markets: An Overinvestment View*, 31 *WORLD ECON.* 1226, 1226–27 (2008).

³² KINDLEBERGER & ALIBER, *supra* note 12, at 29.

occurs. Indeed, warnings issued by governments have not been effective at stopping bubbles.³³

Structural changes can reinforce and facilitate irrational transactions. The potential for profit attracts increased capital infusion to facilitate purchases.³⁴ New entities and business models are created to facilitate transactions and maximize return.³⁵ Sub-markets for inputs needed to fuel the buying and selling are created, and discussions about process, implementation, and strategy become prevalent.³⁶

For those participating in a bubble market, the cycle of buying and selling sustains prices akin to someone riding a bicycle because “the rider needs to maintain the forward momentum or the bike becomes unstable.”³⁷ At any point, a correction might occur, preventing the formation of a full-blown bubble.³⁸ However, if the mispricing continues, demand drives prices above a level that is justifiable based on the asset’s fundamentals.³⁹ At this juncture, the asset’s pricing is vulnerable to destabilizing events. Prices at the height of the bubble lack rationality, and, therefore, information that affects the mood of optimism can cause investors to exit.

At some point in a typical bubble trajectory, something signals and the former confidence suddenly turns to pessimism.⁴⁰ The trigger may seem rather inconsequential and irrelevant compared to the harm that ultimately occurs when the bubble bursts.⁴¹ It may be a single company’s failure, an exposure of some incidence of fraud, or other occurrence that sheds some doubt on the asset’s invulnerability.⁴² Some have thought that the bursting of the Internet stock bubble began with the announcement that the research results of the human genome project could not be patented.⁴³ This example is remarkable

³³ See Yasushi Asako & Kozo Ueda, *The Boy Who Cried Bubble: Public Warnings Against Riding Bubbles*, 52 *ECON. INQUIRY* 1137, 1137–38 (2014) (listing examples).

³⁴ See KINDLEBERGER & ALIBER, *supra* note 12, at 62.

³⁵ *Cf. id.* at 45 (“[T]here was a reversal between the objective and the process, and in the end the objective became the process.”).

³⁶ *See id.* at 44–46.

³⁷ *Id.* at 13.

³⁸ See George Soros, Remarks at the Festival of Economics, Trento Italy (June 2, 2012), available at http://www.georgesoros.com/interviews-speeches/entry/remarks_at_the_festival_of_economics_trento_italy/.

³⁹ *Id.* (“Eventually the gap between the trend and its biased interpretation grows so wide that it becomes unsustainable.”).

⁴⁰ See KINDLEBERGER & ALIBER, *supra* note 12, at 84–85.

⁴¹ Markus K. Brunnermeier & Martin Oehmke, *Bubbles, Financial Crises, and Systemic Risk*, in 2B *HANDBOOK OF THE ECONOMICS OF FINANCE* 1221, 1245 (G.M. Constantinides et al. eds., 2012), available at <http://ssrn.com/abstract=2103814>.

⁴² See KINDLEBERGER & ALIBER, *supra* note 12, at 32–33.

⁴³ Brunnermeier & Oehmke, *supra* note 41, at 1245.

because investments in communication and biotechnology arise from entirely different economic sectors. Indeed, this example demonstrates the fragile nature of bubbles and their irrational foundations.

As one source describes, as the bubble deflates, “expectations change slowly at some times and rapidly at others as various groups realize – sometimes at different moments and at other times more or less simultaneously – that the current forecasts of prices and values in the distant future differ from earlier views of these same prices and values.”⁴⁴ The prices existent during the bubble period, lacking the necessary rational connection to fundamental price drivers, cannot be sustained. Speculation, funding sources, and optimistic buyers dissipate, sometimes to the vanishing point. If the price fall is rapid, market prices destabilize too quickly for appropriate corrections to occur.⁴⁵

The effect of this destabilization might be confined to speculators, who must shoulder own their private losses. However, some crashes introduce feedback into an entire market, or even beyond. For example, the Internet stock bubble burst so rapidly that the Dow Jones Internet Index lost over half of its value in a single month.⁴⁶ Ultimately, the bursting of the Internet stock bubble impacted confidence in stocks in general.⁴⁷

The housing bubble, and the related inflated activity in the subprime mortgage market, of the first decade of the 2000s led to a sustained financial crisis and was felt in nearly every sector of the U.S. economy. Former Chairman of the Federal Reserve Board Alan Greenspan explained that the crisis was triggered by bundled and securitized assets comprised of mortgages that were “supported by unrealistically positive rating designations by credit agencies,” and later required central banks and governments “to take unprecedented measures.”⁴⁸ The ensuing crash negatively impacted housing, manufacturing, credit, employment, securities, and consumer confidence levels.⁴⁹ The

⁴⁴ KINDLEBERGER & ALIBER, *supra* note 12, at 84.

⁴⁵ Soros, *supra* note 38 (“Bubbles are usually asymmetric in shape: booms develop slowly but the bust tends to be sudden and devastating. That is due to the use of leverage: price declines precipitate the forced liquidation of leveraged positions.”).

⁴⁶ SHILLER, *supra* note 14, at 128.

⁴⁷ *Id.* at 130.

⁴⁸ *The Financial Crisis and the Role of Federal Regulators: Hearing Before the Comm. on Oversight and Gov't Reform*, 110th Cong. 12, 15 (2008) (testimony of Alan Greenspan, former chairman of the Federal Reserve Board) [hereinafter Greenspan Testimony].

⁴⁹ See generally William Poole, *Causes and Consequences of the Financial Crisis of 2007–2009*, 33 HARV. J.L. & PUB. POL'Y 421 (2010); Adam Shell, *Lehman Bros. Collapse Triggered Economic Turmoil*, ABCNEWS.COM, <http://abcnews.go.com/Business/lehman-bros-collapse-triggered-economic-turmoil/story?id=8543352> (last visited Mar. 12, 2015).

crisis is said to have led to the loss of eight million U.S. jobs.⁵⁰ European markets were affected. Further, the impact may have precipitated a paradigm shift in the field of economics to accommodate the study of aggregate volatility.⁵¹ These circumstances have triggered broad questions about the extent that markets might justifiably rely on the self-interest of rational, private actors to ensure market stability.⁵² In the words of Alan Greenspan, “a critical pillar to market competition and free markets[] did break down.”⁵³

In the financial sector, governmental intervention or a lender of last resort can cabin the influence of a bubble’s burst. Other efforts can limit the impact, such as setting a price floor or temporarily halting transactions. According to Minsky, the need for such efforts should not be surprising because, as a capitalist economy that depends on the pursuit of private profit for economic growth, there are “inherent and inescapable flaws that lead to intermittent financial instability.”⁵⁴ One critical question is whether there are measures that might be taken to minimize, or remedy, the instability before it occurs. If there are not, then the next question is whether its effects can be cabined.

C. Examples of Non-monetary Bubbles

The foregoing discussion of bubble behavior has been applied to matters other than price. For example, economist Paul Krugman describes a construction boom as an asset bubble “driven by rapid growth in an area’s population and employment” in which the main growth driver is “the local construction boom, which will eventually collapse when enough houses are completed.”⁵⁵ In this circumstance, the growth is fueled by irrational expectations that cannot be met because they are not based on true fundamental drivers of housing starts. Rather, the housing sales are essentially a “natural Ponzi scheme[]” based on the impossible assumption that the future pricing will necessarily echo the past.⁵⁶

Political scientist Moshe Maor describes “policy bubbles,” which are defined as a non-proportional policy response to an

⁵⁰ Poole, *supra* note 49, at 439.

⁵¹ See Daron Acemoglu, *The Crisis of 2008: Structural Lessons for and from Economics*, CENTRE FOR ECON. POLY RES., Jan. 2009, at 1, 1–2.

⁵² Greenspan Testimony, *supra* note 48, at 45 (“I made a mistake in presuming that the self-interest of organizations, specifically banks and others, were such is that they were best capable of protecting their own shareholders and their equity in the firms.”).

⁵³ *Id.*

⁵⁴ MINSKY, *supra* note 3, at 44.

⁵⁵ Krugman, *supra* note 11.

⁵⁶ *Id.*

existing problem.⁵⁷ Specifically, these can occur when under the existing state of knowledge there is “a real and/or perceived policy overreaction that is reinforced by positive feedback over a long period of time,”⁵⁸ characterized by implementation that “imposes objective and/or perceived social costs without producing offsetting objective and/or perceived benefits.”⁵⁹ Some examples cited by those in the field include privatization for infrastructure, government tsars, and perhaps even sustainability.⁶⁰ As Maor explains, people have a tendency to “fall in love’ with . . . subjectively very attractive ideas or people that individuals imagine can satisfy their deepest desires that they may only be slightly aware of or not at all.”⁶¹ The burst of a policy bubble can “wreak havoc on the policy system” in a number of ways.⁶²

Despite their costs, some policy bubbles create positive public benefits that are difficult to quantify.⁶³ For example, the Human Genome Project and the Apollo space program were accomplished when “the large risks that have been undertaken individually, politically and financially, leading to a collective (individual, public and political) over-enthusiasm” which drove them to their completion.⁶⁴ Under this view, the overall dimension and risks of these projects, which can have important societal payoffs, are “an essential element in the dynamics of important inventions or innovations, and are thus crucial for society.”⁶⁵

Such bubbles bear some relation to those based on price skews. The behavior of buyers (or supporters, in the case of policy bubbles) leans toward support of the activity in question. This support, because it lacks a connection with the fundamental value of the activity, is outsized, irrational, and, in the long term, unsustainable. Unless a societal benefit—perhaps unquantifiable—is achieved, these non-monetary bubbles can have a detrimental impact.

⁵⁷ See Moshe Maor, *Policy Bubbles: Policy Overreaction and Positive Feedback*, 27 GOVERNANCE: INT’L J. POL’Y ADMIN. & INSTITUTIONS 469 (2014).

⁵⁸ *Id.* at 470 (emphasis omitted).

⁵⁹ *Id.*

⁶⁰ *Id.* at 470–71, 475 (quoting Robert Henry Cox & Daniel Béland, *Valence, Policy Ideas, and the Rise of Sustainability*, 26 GOVERNANCE 307 (2013)).

⁶¹ *Id.* at 475.

⁶² *Id.* at 476 (acknowledging the need for additional modeling).

⁶³ See, e.g., Monika Gisler, Didier Sornette & Ryan Woodard, *Innovation As a Social Bubble: The Example of the Human Genome Project*, 40 RES. POL’Y 1412 (2011); Monika Gisler & Didier Sornette, *Bubbles Everywhere in Human Affairs*, SWISS FIN. INST. 1 (RES. PAPER SERIES) 10–16 (2010).

⁶⁴ Gisler & Sornette, *Bubbles Everywhere in Human Affairs*, *supra* note 63, at 16.

⁶⁵ *Id.* at 18.

D. Bitcoin's Bubble Characteristics

This foregoing discussion outlines the general principles of bubbles in both price and non-price contexts. This Article will now turn to a discussion of Bitcoin, which media sources have already named a bubble.⁶⁶ As one example, *The Economist* opined that recent Bitcoin price activity “looks like a classic bubble. Hoarding means that Bitcoin is currently more of a speculative asset than a currency.”⁶⁷ Economists Alan Greenspan, Robert Shiller, and John Quiggen have suggested the same.⁶⁸ According to Quiggen, the lack of the asset's intrinsic worth suggests that holders must depend on appreciation, rather than intrinsic value or future income flow.⁶⁹ For an asset that lacks any intrinsic value, any value above the zero mark is not justifiable in the long run.⁷⁰

Consistent with this explanation, Greenspan has explained that Bitcoin's inability to prove its intrinsic value, is fatal, as “[y]ou have to really stretch your imagination to infer what the intrinsic value of Bitcoin is. I haven't been able to do it. Maybe somebody else can.”⁷¹ Both Norway and Finland have been reported to categorize Bitcoin as a commodity, rather than a currency.⁷² According to the head of oversight at the Bank of Finland, Bitcoin cannot be considered as a currency because there is no issuer that is responsible, and that its “changes in value are totally unregulated and very vulnerable to news, speculation and hoaxes.”⁷³ If it is true that Bitcoin's value is significantly higher than warranted by its underlying fundamentals, the asset is exhibiting classic bubble characteristics.

⁶⁶ See *The Bitcoin Bubble*, ECONOMIST, Nov. 30, 2013, at 13, available at <http://www.economist.com/news/leaders/21590901-it-looks-overvalued-even-if-digital-currency-crashes-others-will-follow-bitcoin>; Tim Worstall, *Yes, of Course Bitcoin Is Showing Bubble Behaviour*, FORBES (Nov. 19, 2013, 1:48 PM), <http://www.forbes.com/sites/tim-worstall/2013/11/19/yes-of-course-bitcoin-is-showing-bubble-behaviour/>.

⁶⁷ *The Bitcoin Bubble*, *supra* note 66.

⁶⁸ See Robert J. Shiller, *In Search of a Stable Electronic Currency*, N.Y. TIMES, Mar. 1, 2014, at BU4, available at <http://www.nytimes.com/2014/03/02/business/in-search-of-a-stable-electronic-currency.html>; John Quiggin, *The Bitcoin Bubble and a Bad Hypothesis*, NAT'L INT., Apr. 16, 2013, at 3, available at <http://nationalinterest.org/commentary/the-bitcoin-bubble-bad-hypothesis-8353>; Jeff Kearns, *Greenspan Says Bitcoin a Bubble Without Intrinsic Currency Value*, BLOOMBERG.COM (Dec. 4, 2013, 2:37 PM), <http://www.bloomberg.com/news/2013-12-04/greenspan-says-bitcoin-a-bubble-without-intrinsic-currency-value.html>.

⁶⁹ Quiggin, *supra* note 68 (“Bitcoin is perhaps the finest example of a pure bubble.”).

⁷⁰ *Id.*

⁷¹ Kearns, *supra* note 68.

⁷² Kati Pohjanpalo, *Bitcoin Judged Commodity in Finland After Failing Money Test*, BLOOMBERG.COM (Jan. 20, 2014, 4:50 AM), <http://www.bloomberg.com/news/articles/2014-01-19/bitcoin-becomes-commodity-in-finland-after-failing-currency-test>.

⁷³ *Id.*

As background, Bitcoin is a privately issued currency based on a decentralized network.⁷⁴ Unlike government-issued currencies, distribution derives from multiple exchange platforms. This virtual currency is not backed by any country or economic system. Bitcoin.org asserts that prices are dictated by the standard economic principle of supply and demand.⁷⁵ To ensure that the system does not flood the market with Bitcoins, rendering the entire sector valueless, scarcity is built into the system through temporal limits on the rate at which new Bitcoins can be created, as well as an aggregate cap of twenty-one million in total.⁷⁶ It has been observed: “both sellers and buyers are building their opinion about a fair price without a quantifiable economic anchor or model.”⁷⁷

Conventional comparators used by government-issued currencies, such as measures against standard currencies, do not exist for this virtual currency.⁷⁸ There are few robust competitors to provide parity valuation. On the demand side, the currency creates incentives to hoard, which can artificially inflate demand.⁷⁹ One currency expert has reported that Bitcoin price increases are trending above its entire future maximum market capitalization.⁸⁰

Further, one study has shown a correlation between Bitcoin price shifts and an increase in media reports about the currency.⁸¹ This circumstance suggests that prices are being set based on subjective perception, and not traditional drivers that include supply and demand. This same source found that those

⁷⁴ See generally Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System*, BITCOIN.ORG, <https://bitcoin.org/bitcoin.pdf> (last visited Feb. 17, 2015).

⁷⁵ *FAQ - Bitcoin*, BITCOIN, <https://bitcoin.org/en/faq> (last visited Feb. 17, 2015) (“The price of a bitcoin is determined by supply and demand.”).

⁷⁶ JERRY BRITO & ANDREA CASTILLO, MERCATUS CTR., BITCOIN: A PRIMER FOR POLICY MAKERS 6–7 (2013), available at http://mercatus.org/sites/default/files/Brito_BitcoinPrimer.pdf.

⁷⁷ Florian Glaser et al., *How to Price a Digital Currency? Empirical Insights on the Influence of Media Coverage on the Bitcoin Bubble*, in TAGUNGSBAND MULTIKONFERENZ WIRTSCHAFTSINFORMATIK 2014 (MKWI 2014) 1404, 1408 (2014).

⁷⁸ *Id.* at 1409.

⁷⁹ See generally Ronald Stiff, Keith Johnson & Khairy Ahmed Tourk, *Scarcity and Hoarding: Economic and Social Explanations and Marketing Implications*, in 2 ADVANCES IN CONSUMER RESEARCH 203 (1975); Paul Krugman, *Golden Cyberfettlers*, N.Y. TIMES (Sept. 7, 2011, 12:20 AM), <http://krugman.blogs.nytimes.com/2011/09/07/golden-cyberfettlers/> (“[T]here has been an incentive to hoard the virtual currency rather than spending it.”).

⁸⁰ DAVID WOO, IAN GORDON & VADIM IARALOV, BANK OF AM. MERRILL LYNCH, BITCOIN: A FIRST ASSESSMENT (2013), available at <https://ciphrex.com/archive/bofa-bitcoin.pdf>; see also Krugman, *supra* note 79.

⁸¹ Glaser et al., *supra* note 77, at 1415. Another paper suggests that other demand drivers include the novelty of the system and the currency’s global availability. FLORIAN GLASER ET AL., BITCOIN – ASSET OR CURRENCY? REVEALING USERS’ HIDDEN INTENTIONS 5 (2012), available at <http://ecis2014.eu/E-poster/files/0917-file1.pdf>.

who hold Bitcoin appear to have an optimistic bias and hold the asset in anticipation of price appreciation.⁸² Seeking to buy low and sell high, those holding the currency appear to be anticipating arbitrage for profit to subsequent purchasers. Further, according to the European Central Bank, “it can justifiably be stated that Bitcoin is a high-risk system” that “could collapse if people try to get out of the system and are not able to do so because of its illiquidity.”⁸³

It is well known that Bitcoin pricing is subject to high volatility.⁸⁴ Further, there do not appear to be external market correctors or agencies of last resort. Bitcoin does not promise to take action to prevent rapid devaluation or to operate as an institution of last resort to ensure returns to those who hold currency.⁸⁵ Although it is too early to definitively determine whether Bitcoin is subject to bubble pricing in fact, some indicators suggest that Bitcoin pricing is not well correlated to standard economic principles of supply and demand.⁸⁶

II. THE PATENT AS ASSET: THE NEW ECONOMY OF IP

A. Patent Valuation and the Monetization Industry

This Article will turn to examining patent monetization activity in light of the foregoing discussion. In doing so, a distinction is drawn between the fundamental, statutorily defined definition of patent prices and those obtained through patent arbitrage. Although patent assertion programs had been undertaken in the past in a limited manner, the increases in

⁸² See GLASER ET AL., BITCOIN – ASSET OR CURRENCY? REVEALING USERS’ HIDDEN INTENTIONS, *supra* note 81, at 11.

⁸³ EUROPEAN CENT. BANK, VIRTUAL CURRENCY SCHEMES 27 (2012), available at <http://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemes201210en.pdf>.

⁸⁴ See e.g., Greg Bensinger, *Will Bitcoin Be Accepted by Paypal?*, WALL ST. J. BLOGS (Apr. 30, 2013, 4:24 PM), <http://blogs.wsj.com/digits/2013/04/30/could-paypal-be-on-horizon-for-bitcoin/>; BRITO & CASTILLO, *supra* note 76, at 17–18; see also BITCOIN CHARTS, <http://bitcoincharts.com/charts/bitstampUSD#tgSzm1g10zm2g25zv> (last visited Sept. 18, 2014).

⁸⁵ As Gavin Andresen, a chief scientist at Bitcoin, cautioned, “Bitcoin is an experiment. Treat it like you would a promising Internet start-up company: maybe it will change the world, but realize that investing your money or time in new ideas is always risky.” Gavin Andresen, *That Which Does Not Kill Us Makes Us Stronger*, GAVINTHINK (June 20, 2011, 11:56 AM), <http://gavintthink.blogspot.com/2011/06/that-which-does-not-kill-us-makes-us.html>. But see *FAQ - Bitcoin: Won't Bitcoin Fall in a Deflationary Spiral?*, BITCOIN, <https://bitcoin.org/en/faq#what-determines-bitcoins-price> (last visited Sept. 18, 2014) (“With a stable monetary base and a stable economy, the value of the currency should remain the same.”).

⁸⁶ See *The Bitcoin Bubble*, *supra* note 66; Worstall, *supra* note 66.

sophistication, complexity, and volume are comparatively recent.⁸⁷

This separation parallels the analyses of other assets, which consider pricing of the asset *as an investment* as a distinct operation from more traditional functions. Thus, an appropriate economic analysis of Bitcoin *as an investment* is distinct from the currency's fundamental drivers *as a currency*.⁸⁸ Similarly, this same division is drawn between a home that is priced *as a home*, compared to the home priced *as an investment for resale*. Applying this same distinction, patents priced *as legal rights* under the statutory definition and *patents used for monetization* are viewed separately.

Unlike the traditional uses of legal rights to vindicate a legal harm, patent assertion entities consider court dates as liquidity events and patents as assets to be arbitrated.⁸⁹ In this context, patent values are largely determined either privately or through litigation awards. Across all sectors, the methodology for setting patent values is indeterminate. As one recent survey of in-house patent attorneys concluded, “[v]irtually all interviewees lamented the fact that no coherent valuation technique exists.”⁹⁰ Negotiations between patent monetizers and accused infringers lack mutual understandings of a patent's worth.⁹¹ One recent survey of patent monetizers concludes that this group believes that valuation is one of their largest concerns.⁹² According to one interviewee, the problem of imprecision in patent valuation

⁸⁷ SUZANNE S. HARRISON & PATRICK H. SULLIVAN, EDISON IN THE BOARDROOM REVISITED 217 (2012) (noting that patent assertion has existed for years but “[w]hat has changed recently is the size and scale of the activities”); David L. Schwartz, *The Rise of Contingent Fee Representation in Patent Litigation*, 64 ALA. L. REV. 335, 380–81 (2012); see also Tom Ewing & Robin Feldman, *The Giants Among Us*, 2012 STAN. TECH. L. REV. 1, 1; Alvarado, *supra* note 2, at 58 (observing that patent monetization began rising around 2003).

⁸⁸ See generally Krugman, *supra* note 79.

⁸⁹ See generally Andrei Hagiu & David Yoffie, *Intermediaries for the IP Market* (Harvard Bus. Sch., Working Paper No. 12-023, 2011).

⁹⁰ Malcolm T. Meeks & Charles A. Eldering, *Patent Valuation: Aren't We Forgetting Something? Making the Case for Claims Analysis in Patent Valuation by Proposing a Patent Valuation Method and a Patent-Specific Discount Rate Using the CAPM*, 9 NW. J. TECH. & INTELL. PROP. 194, 205 (2010); see also Alvarado, *supra* note 2, at 57 (“[T]he tricky part is that the line between what makes each party happy is not clear at all.”).

⁹¹ Alvarado, *supra* note 2, at 57 (“From the NPE [non-practicing entities] side, there might be too high expectations on the amount asked for the license; and on the side of the operating company, there might be unwillingness to pay the rates that the licensing company is proposing.”).

⁹² *Id.* at 66; see also Tomoya Yanagisawa & Dominique Guellec, *The Emerging Patent Marketplace* 14 (OECD Sci., Tech. & Indus., Working Paper No. 2009/09, 2009), available at <http://dx.doi.org/10.1787/218413152254> (“[M]ost [patent monetizers] have difficulty in identifying the value of their patents, since the value of a patent is based on a number of factors including the breadth of the claims, how widely the patent is already being used or will be used in the future, and the ability to enforce the patent.”).

“is the mother of them all.”⁹³ Another queried, “[W]hat is the real value of a patent? No one knows and the models that have we have right now are not mature enough.”⁹⁴ The circumstance is further complicated by the fact that patent valuations change from one infringer to another, depending on the nature of the use.⁹⁵

These quotes are based on the present state of the law, where few solid price benchmarks exist and none are likely to emerge.⁹⁶ There are remarkably few market correctors to stabilize and guide patent values. One potentially stabilizing source of price comparators is jury verdicts, which determine the value of the use of a patented technology according to a fifteen-factor test that “overloads the jury with factors to consider that may be irrelevant, overlapping, or even contradictory.”⁹⁷ Verdicts based on the fifteen-factor test, which by their nature vary from case to case, are subject to a deferential standard of review.⁹⁸ These standards, such as they are, tolerate a wide range of disagreement about valuation. Industry norms may provide some comparators, although patent assertion entities do not disclose specifics, license agreements are largely confidential, and there are few comparators.⁹⁹

As previously described, Miller suggests that the existence of differences of opinion about an asset’s value is sufficient to skew pricing.¹⁰⁰ This circumstance is prevalent in patent licensing, where price anchors are limited. To the extent that there is price competition, it manifests in the form of patent assertion entities bidding against each other to obtain the highest-value patents from sellers, driving portfolio prices upward to the highest bidder.¹⁰¹ Those with pessimistic expectations about this activity

⁹³ Alvarado, *supra* note 2, at 66.

⁹⁴ *Id.*

⁹⁵ *Cf. In re Innovatio IP Ventures, LLC Patent Litig.*, No. 11 C 9308, 2013 WL 5593609, at *6 (N.D. Ill. Oct. 3, 2013) (“[A] court should consider the importance of the patent . . . to the alleged infringer’s accused products.”).

⁹⁶ See Daralyn J. Durie & Mark A. Lemley, *A Structured Approach to Calculating Reasonable Royalties*, 14 LEWIS & CLARK L. REV. 627 (2010) (outlining the uncertainties created by current reasonable royalty calculations and proposing a solution).

⁹⁷ *Id.* at 628. A patentee can also obtain lost profits from an infringer. As a practical matter, because patent monetization entities do not make products, this form of relief is unavailable in this context.

⁹⁸ *Id.* (stating that jury royalty findings made on this complex, multi-factor test are “almost entirely immune from scrutiny by either district or appellate judges facing a deferential standard of review”).

⁹⁹ It appears that some entities go to great lengths to shield the confidentiality of the terms of these agreements. See Anderson, *supra* note 1.

¹⁰⁰ See Miller, *supra* note 23.

¹⁰¹ *Cf. RPX Corp.*, Annual Report (Form 10-K) 8 (Mar. 26, 2012) (stating that parties within this field, including patent assertion entities, compete for high value patents).

would only rarely engage in such competitions to moderate pricing discussions.¹⁰²

The federal judiciary has manifested deep divisions as to the appropriate starting point. For example, Judge Posner's opinion in *Apple, Inc. v. Motorola, Inc.* accepted, in principle, that a patent lawsuit might yield nominal damages where the infringement results in no actual harm to the rights holder.¹⁰³ In essence, Posner's conclusion rests on the fact that a patentee's failure to demonstrate harm warrants no monetary relief, based on nature of the patent right, the Supreme Court's *eBay* opinion, and the limited power of the federal courts.¹⁰⁴ An extension of Posner's viewpoint leads to the inference that licensors who are unable to demonstrate more than a mere trespass of their patent right are not entitled to *any* revenue from accused infringers. Certainly, this has the profound potential to throw a stake into the heart of patent monetization practices. The concept of legal harm, like so many legal conclusions, rests on policy choices imposed by law. In this sense, monetizers would be required to show a legally cognizable harm recognized as such by existing legal standards. Specifically, patent monetizers are in the business of selling (or licensing) their own injury. If patent infringement that is a mere trespass is judicially limited to nominal damages, the monetizer's injury has virtually no financial worth. Accused infringers already have "a negative preconception of what [patent monetizers] do," and no rational operating company would pay a license fee without the force of law behind it.¹⁰⁵

On appeal, the Federal Circuit questioned Posner's conclusion in *Apple v. Motorola*, and stated that every infringement warrants some measure of damages except in the very narrowest (and unlikely) circumstances.¹⁰⁶ In effect, the Federal Circuit's analysis creates a floor for virtually any valid

¹⁰² An accused infringer may seek to purchase a patent for the lowest possible price. However, a bidding war between a monetizer and an accused infringer would prevent such a transaction from being consummated at a low price. Under these circumstances, an accused infringer has the incentive to bid high to avoid the risk of an adverse judgment and transaction costs if the patent is litigated against it.

¹⁰³ *Apple, Inc. v. Motorola, Inc.*, 869 F. Supp. 2d 901, 909–10 (N.D. Ill. 2012), *aff'd in part, rev'd in part and remanded*, 757 F.3d 1286 (Fed. Cir. 2014).

¹⁰⁴ *See id.*

¹⁰⁵ Alvarado, *supra* note 2, at 57.

¹⁰⁶ *Apple, Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1328 (Fed. Cir. 2014) (stating that a patentee may obtain nominal damages award only where "the defendant considered the patent valueless and the patentee would have accepted no payment for the defendant's infringement," and acknowledging that "it seems unlikely that a willing licensor and willing licensee would agree to a zero royalty payment in a hypothetical negotiation, where both infringement and validity are assumed").

and infringed patents. By extension, this appellate ruling might be read to support the patent monetizer's business model. This disparate view of damages reveals a philosophical difference among the jurists about patent values. More broadly, these jurists fundamentally disagree over whether a mere trespass of the patent right is sufficient to support a damages award. These opinions reflect fundamental differences between these jurists about the nature of infringement, the Supreme Court's *eBay* opinion, and the power of the federal courts. Significantly, this further demonstrates that any nascent patent market rests on a system that might shift theoretically at its most fundamental levels.

B. Capturing Value in a Knowledge Economy

At present, rights holders privately manage their intellectual property to maximize their competitive advantage and, ultimately, revenue. There is no governmental requirement, incentive, or suggestion that such practices occur in a manner that is consistent with the public interest. Patent monetization might be subject to the types of frictions, identified by Minsky, that are suitable to create incoherence. As one example—similar to the thinking that was prevalent during the tech stock bubble of the 1990s—each rights holder may strongly believe that its own patent portfolio warrants maximum damages. This circumstance has the potential to drive patent prices upward. Coupled with the high costs of defense, this activity can lead to an end-point wherein the total demand for license fees outstrips accused infringers' willingness or ability to pay.

The practice of patent monetization has been analogized to the creation of a new asset class—that is, “a new alchemy of corporate wealth creation in which intellectual property has come to play a powerful new role as a strategic asset and competitive weapon of enormous value.”¹⁰⁷ This viewpoint is typified, among other places, by the book *Rembrandts in the Attic: Unlocking the Hidden Value of Patents* (“*Rembrandts*”), published in 2000, which instructed readers on patent monetization strategies.¹⁰⁸

¹⁰⁷ KEVIN G. RIVETTE & DAVID KLINE, *REMBRANDTS IN THE ATTIC: UNLOCKING THE HIDDEN VALUE OF PATENTS* 43 (2000).

¹⁰⁸ *Id.* at 28; see also HARRISON & SULLIVAN, *supra* note 87, at 96 (discussing capturing IP value through monetization strategies). This verbiage is not confined to books. For example, Acacia Research Corporation states on its website that its mission is to “set[] patents free.” See *Patent Licensing Primer*, ACACIA RES. CORP., <http://acaciaresearch.com/how-we-work/> (last visited Feb. 1, 2015). Acacia Research “work[s] towards . . . providing inventors and organizations with opportunities to unleash the untapped potential in patents.” *How We Work*, ACACIA RES. CORP., <http://acaciaresearch.com/how-we-work/> (last visited Feb. 1, 2015).

The book quotes former Securities and Exchange commissioner Steven Wallman, who explained: “I see this [trend] coming out of a change in our economy from one that is industrial-based to one that is knowledge-based, where intellectual property, soft assets, and other intangibles increasingly make up the bulk of the asset base for wealth production in our society.”¹⁰⁹ Although Wallman’s quotation might be read to encourage companies to increase research and development, *Rembrandts* urged CEOs to take advantage of the “current run-up in intellectual asset values” by asserting their patents to generate licensing revenue by developing strategies that “liberate the untapped value of their company’s intellectual assets” and “achieve outsized gains.”¹¹⁰ Citing several high-profile success stories, the authors described non-practicing entity executives who “like to refer to themselves as ‘merchant scientists’ who roam the world ‘prowling for great ideas to license to deep-pocketed manufacturers.’”¹¹¹ The work describes numerous methods for leveraging “the huge IP asset values lying untapped in intellectual property portfolios,” and noting that “the value of intellectual property [is] rising by leaps and bounds.”¹¹² Such quotes appear to parallel the “new economy thinking” identified by Shiller as to bubble creation. In short, patent monetization has been viewed as a key opportunity for positive financial growth.¹¹³

A web of new business structures has emerged to support patent assertion activity. These include intermediaries that rely on multiple subsidiaries and funds, as well as entities that finance acquisition and enforcement litigation.¹¹⁴ Some assist inventors and owners to fine-tune or expand their original rights.¹¹⁵ Some assist product companies to defend against allegations of patent infringement.¹¹⁶ Educated and expert participants populate these new structures. Together, these circumstances paint a picture that there is a monetary opportunity relating to the patent monetization field.

¹⁰⁹ RIVETTE & KLINE, *supra* note 107, at 51 (quoting Steven Wallman, former Securities and Exchange Commission Commissioner).

¹¹⁰ *Id.* at 124.

¹¹¹ *Id.* at 132.

¹¹² *Id.* at 144.

¹¹³ See KINDLEBERGER & ALIBER, *supra* note 12, at 27–29.

¹¹⁴ See *id.* at 30–33.

¹¹⁵ Acacia Research Corp., Annual Report (Form 10-K) 7–8 (Feb. 25, 2014) (“[W]e often assist patent holders with the acquisition of additional rights associated with their inventions both in the United States and across the globe.”).

¹¹⁶ For an overview of various business structures in the patent monetization space, see generally RAYMOND MILLIEN & RON LAURIE, A SUMMARY OF ESTABLISHED AND EMERGING IP BUSINESS MODELS 5–6 (2007), available at <http://www.concap.cc/wp-content/uploads/2012/03/IP-Business-Models.pdf>.

Patent arbitrage has reached a large scale that is part of a large and complex industry; as one source observes, “the scale itself is simply mind-boggling.”¹¹⁷ The amount of capital raised by patent assertion entities to operationalize their business plans is estimated to be in the billions of dollars.¹¹⁸ Approximations of the number of active patent assertion entities vary widely, from 250 to over 1000.¹¹⁹ By May 2009, the largest had spent over \$1 billion acquiring patents.¹²⁰ Another monetizer, Acacia Technologies, owns rights to over 200 patent portfolios, either directly or through its subsidiaries.¹²¹ Although few entities disclose numerical details of their operations, it is thought that most obtain the majority of their licensing revenue through negotiation, rather than litigation.¹²² The sheer volume of patent transactions are notable, and suggest that this activity is sufficient to impact patent valuations more broadly.

High volume patent transfers are reported to rival (or exceed) the prices of skyscrapers. One source reports that Microsoft obtained a broad license to Acacia Technology’s patents for a three-year term for \$22.5 million dollars.¹²³ Kodak monetized its 1100-patent portfolio to a group of operating companies for \$525 million.¹²⁴ In 2012, Acacia spent \$150 million to acquire a patent portfolio covering 4G wireless technologies.¹²⁵ Also that year, another monetizer named Vringo paid Nokia \$22 million and an ongoing revenue stream for patents essential for cell phone data transmission.¹²⁶

Today, there is currently a greater quantity of patents available for purchase.¹²⁷ Managers seeking ready cash or a revenue stream have marketed patents that have been deemed

¹¹⁷ Ewing & Feldman, *supra* note 87, at 2; *see also* RPX Corp., *supra* note 101, at 2.

¹¹⁸ RPX Corp., *supra* note 101, at 4; *see also* Schwartz, *supra* note 87, at 339 (“While historically there has been a small amount of buying and selling of freestanding patents, there is substantial evidence that the market for patents has recently grown.”).

¹¹⁹ Letter from Noreen Krall, Vice President, Chief Legal Counsel, Apple Corp., to Donald S. Clark, Sec’y FTC (Dec. 16, 2013), *available at* http://www.ftc.gov/sites/default/files/documents/public_comments/2013/12/00069-87879.pdf; RPX Corp., *supra* note 101, at 4.

¹²⁰ Nigel Page, *IV Shifts Gear*, INTELL. ASSET MGMT. MAG., July–Aug. 2009, at 9, 13.

¹²¹ Acacia Research Corp., *supra* note 115, at 3.

¹²² *Cf.* Joff Wild, *Star Man*, INTELL. ASSET MGMT. MAG., July–Aug. 2013, at 63, 67 (describing a patent assertion entity’s preference to negotiate, rather than litigate).

¹²³ Video Streaming Solutions L.L.C. v. Microsoft Corp., No. 13 C 7031, 2014 U.S. Dist. LEXIS 71739, at *2 (N.D. Ill. May 27, 2014).

¹²⁴ Andrew Martin, *Kodak to Sell Digital Imaging Patents for \$525 Million*, N.Y. TIMES, Dec. 19, 2012, at B3, *available at* <http://www.nytimes.com/2012/12/20/business/kodak-to-sell-patents-for-525-million.html>.

¹²⁵ Acacia Research Corp., *supra* note 115, at 30.

¹²⁶ Vringo Inc., Annual Report (Form 10-K) 6 (Mar. 21, 2013).

¹²⁷ Schwartz, *supra* note 87, at 379.

unnecessary to protect their companies' competitive position.¹²⁸ There is some evidence that shows that research universities have transferred either patents or the rights to future research to monetizer Intellectual Ventures.¹²⁹

Unlike stocks that are purchased and re-sold to "keep the bicycle moving forward to maintain momentum," the ability to recoup the sales price and profit occurs largely through licensing or litigating a patent (or a portfolio of related patents). The successful innovators are the most frequent and high profile targets of this activity.¹³⁰ In some instances, this may be accomplished by finding so-called "undervalued" patents. Yet inputs into this market include sophisticated entities.¹³¹ Although it is certainly plausible that some patents sold by these experienced entities are undervalued, it is not entirely clear that this can occur across the board. Furthermore, the lack of valuation benchmarks contributes to patent assertion entities' ability to "buy low, license high" even from well-informed, sophisticated patent sellers.

Some firms have turned a significant profit. For example, Acacia Technologies has asserted that it has earned a tripled rate of return over a five-year period, and of that it has returned over \$600 million to its investors.¹³² During 2013, three publicly traded patent monetizers achieved a rate of return better than the S&P 500 average.¹³³ Nonetheless, the year-to-year performance of these entities has not been steady.¹³⁴ In part, this is because any individual companies' performance is strongly aligned with its litigation calendar.¹³⁵

¹²⁸ *Id.* at 380.

¹²⁹ Ewing & Feldman, *supra* note 87, at 7–8.

¹³⁰ *Most Pursued Companies*, PAT. FREEDOM (July 14, 2014), <https://www.patentfreedom.com/about-npes/pursued/>.

¹³¹ In some reported instances, patent aggregators have re-sold patents to other non-practicing entities, which mimics the "keep the bicycle moving forward to maintain momentum," conduct indicative of pricing bubbles. However, it is not clear whether the sale prices are higher than the purchase price of these assets, or how widespread this practice is.

¹³² See ACACIA RESEARCH CORP., INVESTOR RELATIONS PRESENTATION, Q2 2014, at 8 (2014), *available at* <http://acaciaresearch.com/wp-content/uploads/2013/10/Acacia-Research-Presentation-Q214.pdf>; ACACIA RESEARCH CORP., INVESTMENT PROFILE JUNE 2014, at 1 (2014), *available at* <http://acaciaresearch.com/wp-content/uploads/2013/10/Acacia-Fact-Sheet-Q2-2014.pdf>.

¹³³ Maulin Shah, *Stock Performance of Publicly Traded Patent Trolls – A Year in Review*, PATENTVUE (May 2, 2014, 5:03 PM), <http://envisionip.com/blog/2014/05/02/stock-performance-publicly-traded-patent-trolls-year-review/>.

¹³⁴ *Id.*

¹³⁵ *See id.*

C. Patent Assertion Pricing Methods and Fundamentals

The key questions center on whether overall prices within this imperfect market bear a reasonable relationship to fundamental drivers of patent valuation. To the extent there is a significant disconnect, additional issues begin to emerge. These include the question of whether a dramatic shift in the patent monetization area will affect confidence in the patent system more generally. Additionally, to the extent that current licensing valuations are skewed, there is a question of whether subsequent valuations will continue to rely on such transaction prices as comparators in the future. To the extent that this occurs without correction, any currently elevated prices can be expected to distort any patent market that later develops.

Anticipated returns on monetization investments are based on the ability to recoup the sale price, plus obtain a profit, from licensing—in other words, the practice of “buy low, license high.” Rational patent monetizers purchase patents at a level that anticipates profit to be made through the churning, turnover event.¹³⁶ Yet on its face, this practice violates the one-price rule. A patent’s intrinsic characteristics do not change through transfer to a patent assertion entity. Objectively, the patent claims no more than it did before, and it is no more likely to be infringed or valid. The market and its technological context have not changed by the mere fact of transfer. Although some unsophisticated or distressed sellers may be pricing patents below market value, there are some inherent difficulties with this explanation. It assumes an accepted foundation for calculating royalties that is currently lacking. Additionally, seller companies and universities presumably possess access to sufficient resources to properly value patents to the extent that this is feasible. Even some distressed sellers, including Kodak and Nortel, have sold patents to high-profile patent buyers even though both companies were in difficult financial circumstances at the time of sale.¹³⁷ One source suggests that patent aggregators compete to buy; patents are sold to the highest

¹³⁶ Cf. Wild, *supra* note 122, at 66–67 (describing the goal of the enterprise to maximize return on the patents). Notably, each transaction must factor in the cost of assertion, including the cost of negotiation or litigation. Dan Levine & Tom Hals, *Exclusive: Intellectual Ventures Faces Novel Attack on Patent Business*, REUTERS, (Oct. 29, 2013, 7:10 AM), <http://www.reuters.com/article/2013/10/29/us-intellectual-ventures-law-suit-idUSBRE99S05120131029> (describing that a patent acquired for \$750,000 by Intellectual Ventures warranted damages of \$310 million against two infringers).

¹³⁷ Martin, *supra* note 124, at B3; Peg Brickley, *Nortel \$4.5-Billion Patent Sale to Apple, Microsoft, Others Approved*, WALL ST. J., (July 11, 2011), <http://www.wsj.com/articles/SB10001424052702303812104576440161959082234>.

bidder.¹³⁸ It cannot be said that all patent monetizer profits are attributable to purchasing undervalued patents.

It has been asserted that patent monetizers add value by adding expertise to transaction and litigation activity. Yet such activity does not necessarily pull “under-valued” patents to a price that reflects fundamental value. Critically, it has been reported that licenses are signed at prices necessary to avoid litigation costs instead of the patent’s true value.¹³⁹ As one source describes, patent monetization entities appear to “capitalize on the poorly functioning patent market” rather than to create a well-functioning, efficient one.¹⁴⁰

According to Apple, perhaps the most frequent target of patent monetizers, larger companies are asked to pay for patent licenses to avoid the cost of defense.¹⁴¹ According to the company, “the opening line of many negotiations is some form of, ‘What we’re asking for is less than it will cost you to litigate this case to judgment.’”¹⁴² It has agreed to over fifty settlements, and “the threat of fees often forces an undeserved settlement” to avoid the high cost of defense.¹⁴³ Compared with small startups, larger companies face big ticket demands, and monetizers “have a reputation for surprising the largest and most profitable companies with infringement lawsuits just after the announcement of a new and important product.”¹⁴⁴

Based on its experiences, Apple states: “The gap between a [patent assertion entity’s patent] acquisition price and its ultimate demand suggests that something other than the patent’s contribution to innovation and progress is

¹³⁸ RPX CORP., *supra* note 101, at 8 (stating that parties within this field, including patent assertion entities, compete for high-value patents).

¹³⁹ See EXEC. OFFICE OF THE PRESIDENT, PATENT ASSERTION AND U.S. INNOVATION 6 (June 2013), *available at* http://www.whitehouse.gov/sites/default/files/docs/patent_report.pdf (“Given [the high cost to defend against patent claims], many patent owners and users prefer to settle out of court for amounts that have not so much to do with the economic value of their patents or the probability that they have infringed. Instead, settlements are affected more by the parties’ relative opportunity costs of going to trial and attitudes towards risk . . .”); Robin Feldman, *Patent Demands & Startup Companies: The View from the Venture Capital Community*, 16 YALE J.L. & TECH. 236, 275 (2014) (noting that an offer to settle was based on the observation that a license was signed for \$1–2 million, in order to avoid \$3–5 million in attorney fees to litigate the dispute).

¹⁴⁰ *RPX and the Broken Patent Market*, PUNCH CARD INVESTING (Oct. 11, 2013), <http://punchcardblog.wordpress.com/2013/10/11/rpx-and-the-broken-patent-market/>.

¹⁴¹ Brief of Apple Inc. as Amici Curiae in Support of Neither Party at 2, *Octane Fitness, L.L.C. v. Icon Health and Fitness, Inc.*, No. 12-1184 (2014).

¹⁴² *Id.*

¹⁴³ *Id.*

¹⁴⁴ Letter from Noreen Krall, *supra* note 119.

driving . . . patent valuation.”¹⁴⁵ If Posner is correct that harmless patent infringement warrants nominal damages, then the logical baseline for some discussions is close to the nominal mark, and not the far higher amount attributable to litigation defense costs.¹⁴⁶

The reasons that nuisance settlements work in the short term is that any single valid claim that is arguably sufficient to encompass a single feature of an innovator’s product creates a viable foundation for a lawsuit, together with all of the attendant costs and disruptions. The more sophisticated monetizers take a portfolio approach to patent acquisition.¹⁴⁷ As one source points out, “a well-conceived patent portfolio operates much like a ‘super-patent’; its scale-effects mean that a holder wields otherwise-unattainable market power in a particular technological field.”¹⁴⁸ From the perspective of those accused of infringement, these portfolios create a cloud of uncertainty that is difficult to permeate. A monetizer that owns thousands of patent claims creates an intimidation factor that cannot be paralleled by the assertion of a single patent. Weaknesses in one patent can be easily overcome with arguments based on any of a dozen or so other patents in the portfolio. Under these circumstances, “the range of each patent cannot be determined without a large investment of time and effort, and any pre-litigation predictions about the scope of a patent may prove incredibly wrong.”¹⁴⁹

One study reports that small entities are also targets of those who are responsible for nuisance demands—that is, demands for license payments that are less than the cost of defending against the case.¹⁵⁰ Because the cost of patent litigation can easily reach hundreds of thousands of dollars up to millions, patent monetizers can charge a significant fee despite the high likelihood that the asserted patent is invalid or worthless.¹⁵¹ In one reported instance, patent monetizer Lodsys

¹⁴⁵ *Id.*

¹⁴⁶ Generally, the Patent Act requires that royalties be based on the use of the invention and track the value of the patent’s contribution over the prior art. 35 U.S.C. § 284 (2012); see also Amy L. Landers, *Patent Claim Apportionment, Patentee Injury, and Sequential Invention*, 19 GEO. MASON L. REV. 471, 490 (2012).

¹⁴⁷ Cf. Gideon Parchomovsky & R. Polk Wagner, *Patent Portfolios*, 154 U. PA. L. REV. 1, 6 (2005) (noting that firms will take a portfolio approach to patents).

¹⁴⁸ *Id.* at 7.

¹⁴⁹ Ewing & Feldman, *supra* note 87, at 25.

¹⁵⁰ Colleen Chien, *Startups and Patent Trolls*, 17 STAN. TECH. L. REV. 461, 477 (2014).

¹⁵¹ *Why Patent Quality Matters*, PAT. QUALITY INITIATIVE, <http://www.patentqualityinitiative.com/about%20pqj/why%20patent%20quality%20matters> (last visited Feb. 8, 2015).

offered small app developers a royalty rate of 0.575% of revenue that became due only once the app developer reached a quarterly revenue of \$10,000. Such settlements in effect would require no money upfront from a small developer, but allow Lodsys to advertise that their patent was licensed at a certain rate.¹⁵²

These agreements, which are attractive to cash-starved startups because they avoid any requirement for an early lump sum payment, enable the patentee to institute an artificially high royalty rate.¹⁵³ Once a critical mass of licensees has been signed, the inflated rate can be used as that patent's established royalty rate against larger companies in both licensing negotiations and in court. Any patents of no or low value that have had rates artificially inflated from their fundamental value represent price skews from their fundamental value.

Licensing rates that are based on an amount necessary to defend against infringement allegations lack a rational connection to the fundamental drivers of patent value—that is, the value of the patented technology. For patent assertion that relies on nuisance settlements, patent pricing is likely to exhibit volatility based on factors relating to the rising (or lowering) of the cost of defense.¹⁵⁴ For these, the strategic uses of patents have shifted the focus of the pricing metric to the patent's *strategic value*, rather than the fundamental value of the claims. Additionally, a patent that can be asserted against several deep-pocket infringers garners higher prices than those that can be asserted against those with fewer financial resources, regardless of the fundamental value of the underlying technology. In an environment with few objective anchors, these circumstances suggest that a bubble-like pattern of price optimism in obtaining patents, followed by a pattern of profit recovery through assertion, may push patent values from their fundamental values.

Additional research indicates that the monetizer's ability to buy low and license depends on strategies to maximize monetary return.¹⁵⁵ Monetization most profitably occurs when the accused

¹⁵² Chien, *supra* note 150, at 478.

¹⁵³ *Id.* at 477–78 (describing the strategy).

¹⁵⁴ See Richard Lloyd, *Alice Decision a Big Reason for Sharp Fall in US Patent Litigation*, SAYS MARK LEMLEY, INTELL. ASSET MGMT. (Oct. 9, 2014), <http://www.iam-magazine.com/blog/Detail.aspx?g=dadf4dce-0f75-45dc-9339-dacb0f7bb465> (observing that “the value that the patentees can get from the litigation goes down” when fee shifting and the probability of a dismissal of a patent case on the pleadings increase).

¹⁵⁵ For an example, see Axel Haus & Steffen Juranek, Patent Trolls, Litigation, and the Market for Innovation 13 (May 15, 2014) (unpublished manuscript), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2424407. For a criticism of findings that relate to such targeting, see Ted Sichelman, *Are Patent Trolls “Opportunistic”?* (San

infringer has already invested in the commercialization, marketing, service, and support for the accused product. As stated by Edith Ramirez, “[p]articularly in the high-tech sector, where patent notice is notoriously difficult, licensing fees are likely to reflect investments the implementer has made to bring a product to market, rather than the true economic value of the patent.”¹⁵⁶ Higher settlements can be obtained from innovators who would otherwise encounter significant cost and disruption to redesign the product. Coupled with these practices is the problem that it occurs in an environment with only interstitial value comparators based on a patent’s true fundamentals.

It has been reported that monetizers target firms with strong cash positions, particularly those with recent cash level increases, including revenue sources that are unrelated to any use of the technology.¹⁵⁷ Additionally, patent assertion is more likely to hit “firms that are busy dealing with a number of other litigation events unrelated to intellectual property.”¹⁵⁸ Further, it has been reported that non-practicing entities hold their patents until assertion will maximize business disruption, rather than seeking to license companies who are in the market for a technologically creative design solution.¹⁵⁹ Although these strategies may fully comport with current law, these tactics tend to maximize private revenue rather than to mirror a patent’s inherent worth.

Coupling the lack of comparators with the monetizer’s drive to arbitrage suggests that patent pricing is shifting from the fundamental value of the technology to the potential recovery value from deep pocket infringers that are seeking to guard against legal exposure. As some reports indicate, “[t]he dominant patent assertion strategy is to leverage certain features of the patent *system*—not the strength of the patent or quality of the

Diego Legal Studies, Working Paper No. 14-175, 2014), available at <http://ssrn.com/abstract=2520125>.

¹⁵⁶ Edith Ramirez, Chairwoman, FTC, Opening Remarks at the Computer & Communications Industry Association and American Antitrust Institute Program: Competition Law & Patent Assertion Entities: What Antitrust Enforcers Can Do 4 (June 20, 2013) (transcript available at http://www.ftc.gov/sites/default/files/documents/public_statements/competition-law-patent-assertion-entities-what-antitrust-enforcers-can-do/130620paespeech.pdf).

¹⁵⁷ Lauren Cohen, Umit G. Gurun & Scott Duke Kominers, *Patent Trolls: Evidence from Targeted Firms* 2–3 (Harvard Bus. Sch., Working Paper No. 15-002, 2014), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2464303.

¹⁵⁸ *Id.* at 3.

¹⁵⁹ See Brian J. Love, *An Empirical Study of Patent Litigation Timing: Could a Patent Term Reduction Decimate Trolls Without Harming Innovators?*, 161 U. PA. L. REV. 1309, 1313 (2013) (finding that patent monetizers “overwhelmingly wait to assert their rights until the underlying technology is stale and unlikely to be of much use to accused infringers that independently developed the technology themselves years earlier”).

technology—into royalties.”¹⁶⁰ To the extent that this is widespread activity, the prices set by this conduct threaten to pull patent values away from fundamentals and into the speculative range.¹⁶¹

III. IMPLICATIONS AND CONCLUSION

Minsky predicts that some markets, which may begin in an ordered and self-regulating way, can become subject to incoherence.¹⁶² This circumstance can take hold even in markets that do not suffer from the lack of transparency and the other difficulties that exist in the buying and selling of patents. The prospect of an emerging patent market has the *potential* to operate according to rational economic principles. However, in its current state, it is difficult to predict whether rational economic assumptions will govern in fact, or whether incoherence will prevail. Moreover, it is not realistic to expect that the friction between rational patent monetizers, who develop strategies to maximize profit through arbitrage, will necessarily foster the optimal environment for invention and innovation.

Whether patents or Bitcoins are subject to bubble behavior in fact remains to be seen. Like Bitcoin currency, patent monetization appears to lack sufficient objective tethers to rational fundamentals. Rather than speculative hoarding, patent monetizers use techniques that rely on timing, avoidance of high transaction costs, uncertainty, and target selection to maximize revenue. The most sophisticated patent entities focus on the acquisition and assertion of high-value patents portfolios within areas of vibrant and essential uses of patented technology, such as electronics, communication, and social networking.¹⁶³ The private interests of monetizers, which seek to maximize individual profit, create friction with the social benefits that these technologies are designed to deliver. It may be that a transparent market will ultimately resolve these issues.

¹⁶⁰ Letter from Noreen Krall, *supra* note 119, at 4; *Microsoft Sues Acacia over Smartphone Patents*, REUTERS (Nov. 20, 2013), <http://www.reuters.com/article/2013/11/20/us-microsoft-patents-idUSBRE9AJ14X20131120> (statement of David Howard, Microsoft’s deputy general counsel) (stating that patent monetizer Acacia Research Group is “attempting to extract payment based on litigation tactics and not the value of its patents”).

¹⁶¹ Comprehensive data is difficult to obtain because such agreements are frequently subject to confidentiality provisions. See generally Alan Schoenbaum, *Hey Patent Trolls, the FTC Has a Few Questions for You*, RACKSPACE (Sept. 30, 2013), <http://www.rackspace.com/blog/hey-patent-trolls-the-ftc-has-a-few-questions-for-you/>.

¹⁶² Minsky, *supra* note 3.

¹⁶³ Cf. Wild, *supra* note 122, at 66–67 (describing a patent assertion entity’s preference to negotiate, rather than litigate).

Perhaps the most troubling aspect arises from a practice that mercerizes the violation of legal rights. In this context, future valuation will most likely be based on datasets accumulated during the current patent assertion climate.¹⁶⁴ If current values are skewed from fundamentals, then future agreements will be based on unreliable measures. The “buy low, license high” practice may ultimately be vulnerable to the same flaw that triggers the end of all bubbles—that is, a lack of customers who are ready, willing, and able to pay license fees if monetization activity reaches an unsustainable level. Rates charged to “keep the bicycle moving forward to maintain momentum” will reach a limit as target company profits continue to be diverted to paying licensing fees. At a certain point in time, this practice will drive prices above the level that a sufficient number of licensees (and, ultimately, consumers) will pay.

The patent royalty burden on innovators is not illusory. A recent paper estimates that the cost of the multiple patent royalties necessary to produce a \$400 smartphone is \$120, which is roughly equivalent to the cost of the components required to manufacture the phone, illustrates its operation.¹⁶⁵ This study concludes, “the smartphone royalty stack across standardized and non-standardized technology is significant, and those costs may be undermining industry profitability.”¹⁶⁶ As royalty demands rise, it can be expected that industry participants will become unwilling or unable to pay.¹⁶⁷ The reason may be due to any number of factors, including an overloaded royalty stack, the innovator’s inability to obtain sufficient money to pay the rates charged, or a push against license prices driven primarily by arbitrage activity. Alternatively, innovation may slow as risk adverse innovators become reluctant to add new features that, if successful, result in high demands for patent royalties.

¹⁶⁴ See, e.g., *ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860, 872 (Fed. Cir. 2010) (stating that licenses deriving from litigation settlement are admissible when such licenses are the best available evidence of a patent’s value); *Tyco Healthcare Grp. LP v. E-Z-EM, Inc.*, No. 2:07-CV-262(TJW), 2010 WL 774878, at *2 (E.D. Tex. Mar. 2, 2010) (“A prior, related settlement agreement, where it exists, may be central to the fact-finder’s determination of damages using a hypothetical negotiations analysis.”).

¹⁶⁵ Ann Armstrong, Joseph J. Mueller & Timothy D. Syrett, *The Smartphone Royalty Stack: Surveying Royalty Demands for the Components Within Modern Smartphones 2* (May 29, 2014) (unpublished manuscript), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2443848.

¹⁶⁶ *Id.*

¹⁶⁷ Cf. *Acacia Research Corp.*, Annual Report, *supra* note 115 (observing the potential negative impact on the company’s patent monetization business plan if economic, credit, or market conditions impact licensee’s ability or willingness to pay).

It may be that the patent system has been subject to policy bubble thinking.¹⁶⁸ In part, this may be because the concept that “[a] strong intellectual property system supports and enables the innovation that is the lifeblood of our economy” is a well-engrained maxim among governmental decision makers.¹⁶⁹ That is, the patent system has benefited from a strong policy commitment. Yet there is a mounting literature, particularly among economists, that sheds doubt on the efficacy of patents to facilitate change.¹⁷⁰ As one example, economist Adam Jaffe has concluded that there is a “disquieting” lack of evidence to support the proposition that stronger patent laws have any significant impact on innovation.¹⁷¹ However, to the degree that the valuation becomes swayed by patent monetization, which provides only weak support of knowledge creation, the credibility of the system may become impacted.

Given the potential of royalty demands to chill socially valuable activity, some intervention may be possible to provide some guardrails on the prices that are the subject of private agreements. Certainly, providing clear and certain guidelines for patent valuation is one solution that might prevent speculators from driving the cost of patents either upward or downward. As one source asserts, “[T]he lack of transparent price signals

¹⁶⁸ See *supra* Part I.C and accompanying text.

¹⁶⁹ Press Release, The Whitehouse, Fact Sheet – Executive Actions: Answering the President’s Call to Strengthen Our Patent System and Foster Innovation, (Feb. 20, 2014), <http://www.whitehouse.gov/the-press-office/2014/02/20/fact-sheet-executive-actions-answering-president-s-call-strengthen-our-p>; see also, e.g., Special Message to the Congress Proposing Patent Modernization and Reform Legislation, 1973 PUB. PAPERS 825 (Sept. 27, 1973) (observing that the nation’s “creative history” is based in part on the patent laws that have “enormously stimulated our progress and prosperity”); SUBCOMM. ON PATENTS, TRADEMARKS, & COPYRIGHTS, COMM. ON THE JUDICIARY, TO PROMOTE THE PROGRESS OF USEFUL ARTS: REPORT OF THE PRESIDENT’S COMMISSION ON THE PATENT SYSTEM, S. DOC. NO. 90-5, at iii (1967) (summarizing the committee’s conclusion that the patent system “continues to provide an essential incentive for the conduct of research and the investment of capital”); ECON. & STATISTICS ADMIN. & U.S. PATENT & TRADEMARK OFFICE, INTELLECTUAL PROPERTY AND THE U.S. ECONOMY: INDUSTRIES IN FOCUS, at i (2012), available at <http://www.iprcenter.gov/reports/ipr-center-reports/intellectual-property-and-the-u.s.-economy-industries-in-focus/> (“Protecting our ideas and IP promotes innovative, open, and competitive markets, and helps ensure that the U.S. private sector remains America’s innovation engine.”).

¹⁷⁰ JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK 141 (2008) (“[D]uring the late 1990s, the aggregate costs of patents exceeded the aggregate private benefits of patents for United States public firms outside the chemical and pharmaceutical industries.”); Michele Boldrin & David K. Levine, *The Case Against Patents*, J. ECON. PERSP., Winter 2013, at 3, 7.

¹⁷¹ Adam B. Jaffe, *The U.S. Patent System in Transition: Policy Innovation and the Innovation Process*, 29 RES. POL’Y 531, 540 (2000).

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results in distorted and inconsistent incentives to produce and commercialize new ideas.”¹⁷²

To the extent that a bubble may be developing in the patent assertion area, one question is whether there is a secondary impact on investment that depends on the patent system to support research and development. Stated another way, if patents are viewed as too unpredictable to value, too volatile to incentivize investment, or too dependent on patent monetization entities for pricing norms, such a state of affairs may affect the market’s willingness to invest in the type of research and innovation that the patent system was intended to incentivize. Thus, a bursting of a patent bubble might have immediate second-order effects on the patent system more generally, or perhaps other forms of intellectual property.

At a minimum, prices paid in the price assertion markets should be cabined from affecting royalty rates used as comparators in other areas of patent law. As one example, such prices should be strictly limited, if not eliminated, as a foundational support of expert testimony about established royalty rates for jury proceedings or for other areas of patent licensing practice. To the extent that patent assertion valuation swings, such safeguards would minimize the spillover effects in other areas of investment. To the extent that there is a rapid change in the monetization sector, safeguards should be in place to disconnect these effects from ties to other areas and to help preserve the patent’s system core role in incentivizing invention and innovation.

¹⁷² Joshua S. Gans & Scott Stern, *Is There a Market for Ideas?*, 19 *INDUS. & CORP. CHANGE* 805, 806 (2010).

