# **Intellectual Property, Antitrust and Dynamic Competition**

# Minzhi Meng

# **Introduction**

Economic growth depends in large part on technological change. At the same time, intellectual property rights have proven to be especially important – and controversial – in “new economy” industries (Linda, 2000). More and more antitrust scholars now actively debate the merits of replacing static competition with dynamic competition.

Analyzing in a setting of dynamic competition is different from what we do under the static competition. We do not require for perfect competition condition in a dynamic setting. For the entrepreneurial initiative dynamic, coordination tends to be induced among the decisions made in the marketplace under the pressure of rivalrous entrepreneurs’ alert to the profit-opportunities created by initial discoordination (Kirzner, 2019).

The remainder of the chapter is organized as follows. Section 2 outlines the essential features of high technology industries that form the basis for the subsequent analysis. Section 3 discusses the role of intellectual property rights in high technology industries and how dynamic competition is changing the way that firms collaborate in intellectual property through patent-pooling arrangement. In Section 4 we discuss possible implications for antitrust policy of these arrangements. Section 5 concludes.

1. **Characteristics of High Technology Industries**

Technology competition is full of “uncertainty” - not only is the outcome of any particular project uncertain but also is the impact of successful innovation on markets and competition. Competition in high tech industries is fierce, which is frequently characterized by incremental innovation with outside sources, punctuated by major paradigm shifts, discontinuities and waves of “creative destruction”[[1]](#footnote-1) to replace the existing technology winner that has static market power with another based on improved technology.

From the production side, the high-tech market is in high concentration and great market power (Lecture Notes, Harper, 2019). The biggest reason is demand-side network externalities. There are many products for which the utility that a user derives from consumption of the good increases with the number of other agents consuming the good (Katz, Shapiro, 1985), the phenomenon known as the “network effect”. Positive network effect is common in industries and positive network externalities can lead to a positive network effect. For example, Apple creates its products with Apple-centric features, like FaceTime, iMessage, and Airdrop, and any person with an Apple device has the ability to communicate easily with any other person also in ownership of such a device. If a lot of friends use Apple device, a person might join hoping to connect with them, indicating a positive network externality. And as more people own compatible technology, the value of also owning an iPhone, iPad, or Macbook increases – creating a network effect.

If the network effects are large enough, it is difficult for a small competing, incompatible technology to survive. That’s why high-tech industries are winner-take-all markets. In addition, the success in a certain product market could be extended towards the new field. For instance, tech giant, Google, is a powerhouse of not only search results but other resources like maps, email, and Hangouts.

1. **Innovation and Intellectual Property in High Technology Industries**

An important dynamic of the new economy is the virtuous cycle of competition, innovation, and productivity growth (Farrell, 2003). Secrets of success in high-tech companies lie in their abilities of continuous innovation, and that is why high-tech firms pay extra attention to intellectual property protection. They actively engage in collaborative intellectual property strategies involving technology cross-licensing, patent pools, patent clearing houses and other collaboration. This paper will elaborate more profoundly in analysis of patent pool arrangement.

Patent pool arrangement can be defined as an agreement between patent owners to license a set of patents in a single package, for a posted fee, either by a single owner or by an entity especially set up to handle this arrangement. With the pooling of the required patents into a central independent entity, the entity may sell licenses to the patent pool as a package and then accordingly divide up the royalty stream generated through the licensing revenues to the patent holders.

Often, patent pools are associated with complex technologies that require complementary patents in order to provide efficient technical solutions. One example of it in the U.S. is the Standard-essential Patents (SEPs) among telecommunication companies. When a smartphone is produced, the IPlytics database needs to be used, which combines IPC/CPC clusters with industry concordances focusing on SEPs in the ICT field (WIPO 2017). The IPlytics database is under license including patents held by a variety of innovative companies, for example, 3G Licensing SA, Airbus DS SLC, and so on. With the Mobile Communication Program (MCP), a Sisvel’s MCP offers to license all SEPs for mobile communications held or managed under Sisvel’s various license programs[[2]](#footnote-2), for their use in mobile communication products covering any of the mobile communication standards represented in the platform. Consumers and manufacturers alike, require an increasing level of sophistication of their devices, which requires the implementation of groundbreaking inventions to satisfy today’s appetite for enhanced communication products. Allowing efficient access to these technologies and securing proper rewards for the inventors of these technologies is also becoming more complex. In general, these IP-enabled standards expand the potential licensing markets and encouraging investment in R&D, promoting innovation, cost and process efficiencies and lower transaction costs.

1. **Intellectual Property and Antitrust**

Intellectual property policy (patents, copyright, trademark, trade secret) conveys market power to developers of intellectual property. Antitrust policy determines, in large part, the constraints society places on companies with extensive market power. This creates a potential fundamental conflict between intellectual property policy and antitrust policy. On one side, economic growth depends in large part on technological change. Laws governing intellectual property rights protect inventors from competition, and the identification of property right promote incentives for them to innovate. However, on the other side, antitrust laws aim to constrain how a monopolist can act in order to maintain its monopoly in an attempt to foster competition. In static antitrust analysis, the market concentration and free price-making right with high margin need to be adjusted as they are economically harm to consumers.

Should the monopoly be criticized as market failure in dynamic markets? The answer is “yes and no”. In a dynamic sense, the market-process approach is anti-competitive -- to limit the size of firms is to block entrepreneurial entry, and the industry performance depends on the market activeness, rather than the market structure or market behavior. Monopoly here is a natural competition result rather than the market failure. Thus, hasty intervention may yield adverse outcomes in dynamic markets. More importantly, in high-tech industry, monopoly accompanies innovation, the latter makes up for the economic loss from high market profits for consumers. For example, Microsoft’s bundling behavior in IE is thought to be not only good for Microsoft itself, but so for consumers as they could enjoy scandalized products with IE windows.

However, there are abusive behaviors of enforcing IP rights. The various patent wars among giant companies has been waged over the past few years more proof of the “absurdity” of patents and the patent law. Most recently, [Microsoft has sued Kyocera for infringing on intellectual property](http://www.zdnet.com/article/microsoft-sues-kyocera-over-android-smartphones/). Microsoft maintains that multiple Kyocera’s smartphone products infringe on seven of Microsoft’s patents. As these cases play out, the ensuing litigation or licensing agreements have [cost companies hundreds of millions of dollars in the past](http://www.eweek.com/mobile/apple-must-pay-532.9m-in-itunes-patent-infringement-verdict.html). In this case, the efficiency of IP protection was lost inside the patent system. By the way, some developing countries are always victims of discriminatory pricing from those giant companies overseas.

1. **Conclusion**

The new economy is an economy with dynamic competition. As the representative in the new economy, high technology industries are featured with “creative destruction”, high concentration, great market power as well as large network externalities. One approach for high technology firms to collaborate with each other in intellectual property is to conduct patent-pooling arrangements. In the framework of dynamic analysis, there is complex relationship between intellectual property law and antitrust law.

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# **An Economic Analysis of Corporation Bankruptcy Law**

# Minzhi Meng

*Economics has played an important role in the development of law-and-economics. It*

*has provided the new research program with its normative framework and its positive*

*methodology… It has provided its principle analytical tools – mathematical modelling,*

*game theory and econometric techniques. It has provided, in short, the glue that holds*

*the new research program together and that gives it its distinctive flavor. (Rowley 2016)*

1. **Introduction**

When I heard of some corporate bankruptcy news, I was distressed by the situation of those laid-off workers. Admittedly, for the labor market, unemployment is a big concern of bankruptcy, corporate bankruptcy law, however, tells us far more stories beyond that. With the opportunity of taking the course Economic Analysis of Law, I would like to apply what I have learnt to discuss corporate bankruptcy law in an economic way.

This paper walks through sessions with separate but consecutive topics on corporate bankruptcy. The second part introduces existing bankruptcy law and procedures in the United States. The third part discusses the efficiency of bankruptcy law. The following part conducts a further discussion of the application of economic analysis in law. The last part concludes. The paper incorporates Rowley (2016)’s idea and tries to figure out the importance of economics in law.

1. **Existing Bankruptcy Law and Procedures**

A firm is said to go bankrupt if it cannot meet its current debt obligations (Lecture Note, Harper, 2019). There are two main existing bankruptcy law and procedures in the United States, the bankruptcy liquidation procedure (Chapter 7), and the bankruptcy reorganization procedure (Chapter 11). I call them “7-Eleven in US”[[3]](#footnote-3) as these two chapters provide concrete guidelines as well as solution options and aid packages for firms’ bankruptcy issue, just like one-stop service in 7-Eleven.

**Liquidation and Absolute Priority Rule**

When a firm files under Chapter 7, the bankruptcy courts appoint a trustee who shuts the firm down and sells its assets (Lecture Notes, Harper, 2019).

The basic priority rule in bankruptcy to determine the division of sales is the “absolute priority rule” (APR), which requires that unsecured creditors be repaid in full before shareholders receive anything. When there are multiple creditors, priority among them is determined by whether creditors have a secured interest in a particular asset owned by the corporation or by whether creditors have made agreements with the corporation that specify an ordering. Under Chapter 7, high priority and secured creditors tend to receive full payoff and low priority creditors and equity get nothing.

**Reorganization and Cramdown Rule**

Chapter 11 provides an alternative method for firms in financial distress, that is, reorganization. Unlike in liquidation, each class of creditors and equity receives partial payment, credits and managers bargain over the distribution of the extra value. Under Chapter 11, as existing managers of firms usually remain in control, they have the exclusive right for at least six months to propose a reorganization plan which specifies how much each creditor will receive in cash or new claims on the firm. If a company is successful in Chapter 11, it will typically be expected to continue operating in an efficient manner with its newly structured debt. If it is not successful, then it will file for Chapter 7 and liquidate.

In spite of being voted down by one or more class of creditors, the reorganization procedure can be decided by the judge, which is called “cramdown”. More specifically, if the parties fail to adopt a reorganization plan proposed by managers, then creditors are eventually allowed to offer their own plans. If no plan prosed by creditors is adopted, then either the judge orders or the firm may be offered for sale.

1. **Efficiency Analysis in Corporate Bankruptcy Law**

Economics has provided the new research program with its normative framework and its positive methodology (Rowley, 2016). The economic analysis of bankruptcy law focuses on devising a set of rules which will increase overall social welfare. Let’s discuss the efficiency in corporate bankruptcy law by comparing the two bankruptcy procedures under different circumstances.

Firms that reorganize retain some or all of their assets, but adopt a reorganization plan that uses part of their future earnings to repay debt; firms that liquidate sell all their assets — either piecemeal or as a going concern — and use all of the proceeds to repay pre-bankruptcy debt. From an economic efficiency standpoint, firms should liquidate if the most efficient use of their assets is different from the current use, so that shutdown frees the assets to move to more valuable uses. Conversely, firms should reorganize if the best use of their assets is the current use, so that a reorganization allows the assets to remain in place. However, deciding whether firms should reorganize or liquidate is difficult because it involves predicting whether the value of the firms’ assets would be higher in a different use, which may be in a different industry. “Filtering failure” in bankruptcy occurs when economically efficient corporations are liquidated in bankruptcy or economically inefficient corporations are reorganized in bankruptcy.[[4]](#footnote-4)

However, when we are making the decision, we should not forget managers in firms in distress and we need to prevent managers in the firm from wasting the firm’s assets. When firms are financially distressed, managers have an incentive to gamble with the assets because a successful gamble benefits managers and shareholders by saving the firm, while a failed gamble only harms creditors by increasing their losses. Allowing firms to reorganize in bankruptcy has the advantage of reducing managers’ incentive to gamble because they usually remain in charge during at least the initial stages of the reorganization. But concerning the reason that managers always want to save their jobs, allowing them to remain in charge potentially means that too many financially distressed firms reorganize. In this way, introducing reorganization as an alternative bankruptcy procedure increases “filtering failure”[[5]](#footnote-5) by causing more financially distressed firms to continue operating when they should liquidate. But the option of reorganizing has the offsetting gain of reducing managers’ incentives to invest in excessively risky investment projects when their firms are in financial distress.

1. **Corporate Bankruptcy Law and Game Theory**

Economics has played an important role in the development of law-and-economics. It has provided its principle analytical tools – mathematical modelling, game theory and econometric techniques (Rowley, 2016). Early in 1996, during the discussion of the book Game Theory and the Law, Professor Dau-Schmidt commented that “you might even call it the future of economic analysis of law, because it allows one to relax the assumption that there isn't strategic behavior and there's tremendous potential for the use of game theory in analyzing legal problem.” With the increasing popularity of game theory, application of game theory to law has become a really hot area, and presumably game theory will acquire much wider application in legal analysis.

Scholars view creditors’ coordination problem as a prisoners’ dilemma. Prisoners’ dilemma explores the decision-making strategy taken by two individuals who, by acting in their own individual best interest, end up with worse outcomes than if they had cooperated with each other in the first place. In the case of corporate bankruptcy, creditors have incentives to race to be first to liquidate failing the firm’s assets. If unsecured creditors perceive that a firm is or may be insolvent, they have an incentive to race against each other to be first to collect from the firm. They race to collect by declaring their loans in default and suing the firm for repayment. Since unsecured creditors, they have right to liquidate assets assuming they win their lawsuits, they disrupt the firm’s operations and may force it to shut down even when the best use of its assets is continued operation (Jackson, 1986).

1. **Conclusion**

In summary, there are two main existing bankruptcy law and procedures in the United States, Chapter 7, liquidation, and Chapter 11, reorganization. It’s hard to decide whether firms should reorganize or liquidate because we need to decide which procedure, reorganization or liquidation to use based on the efficiency analysis under the specific circumstance. We can analyze creditors’ coordination problem in the bankruptcy law with the application of economic analytical tools, for example, game theory.

The paper wraps up inspired by Rowley (2016)’s idea. Through this paper, we explore the importance of economic tools and how those tools applied in the analysis of law and related policies in the United States.

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1. “Creative destruction” refers to the incessant product and process innovation mechanism by which new production units replace outdated ones. It was coined by Joseph Schumpeter (1942), who considered it “the essential fact about capitalism”. [↑](#footnote-ref-1)
2. For more information on the MCP, please view MPC website, available at: https://www.sisvel.com/licensing-programs/wireless-communications/mcp/introduction [↑](#footnote-ref-2)
3. 7-Eleven Inc. is a Japanese-American international chain of convenience stores, headquartered in Dallas, Texas. [↑](#footnote-ref-3)
4. There are two types of errors in statistics. In bankruptcy, Type I error occurs when firms that are financially distressed but economically efficient are liquidated and type II error occurs when economically inefficient, distressed firms are saved. [↑](#footnote-ref-4)
5. Filtering failure occurs when the bankruptcy procedure generates either type of error. (Lecture Notes, David Harper, 2019) [↑](#footnote-ref-5)