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A novelty on unlocking businesses' potential growth: Intellectual Property Securitisation

Ilayda Nemlioglu^{*1}

¹ Cardiff Business School, Cardiff University, UK

Abstract

There have been on-going attempts in finance sector in order to create different financial instruments that appeals to variety of investors with different risk appetites. Asset backed securitisation took attention especially in the recent global financial crisis which was caused by the collapse of mortgage bubble. However, securitisation could be beneficial if used for creating financial instruments out of intellectual property rights such as patents or trademarks. In this study, we aim to investigate advantages and disadvantages of intellectual property securitisation by looking at various cases starting from the famous “Bowie Bonds”. It is found that methods such as tranching or bundling could reduce the risk of IP security deals. Also, in order to fully benefit from intellectual property assets, the pricing of those assets should be done in caution. In that sense, different pricing strategies of patents such as real-options pricing are analysed. To sum up, IP securitisation still has profit potential as long as it is done by taking lessons from the global financial crisis.

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1. Introduction

Substantial amount of studies regarding intellectual property rights (IPRs) have been conducted from the law perspective of the subject. Also, studies regarding the financial perspective of the IPRs have been conducted. On the other hand, finance sector leaders develop different financial instruments for appealing investors with different risk appetites. These long withstanding attempts have led to different results such as collapse of mortgage bubble which was followed by global financial crisis. “Securitisation” is a case where all parties aftermath of Global Crisis thinks twice before entering; if any does so. The destructive outcomes of the mortgage crisis shouldn't be forgotten. Yet it's

* Corresponding author. *E-mail address:* nemlioglu@cardiff.ac.uk

a situation where lessons for future should be taken from all perspectives i.e. legal, regulatory, financial and business.

However, the main interest of this paper is neither the mortgage bubble nor the following credit crunch led the Globe to the crisis that's followed by the global recession. The paper is mainly interested is that considering all those existing financial conditions of the capital markets, how IPRs can contribute lenders' and borrowers' investments, in other words what type of investment methods work best for exploiting IP. IP portfolios can make big differences if they're engaged in the right method of exploiting. IP is the companies' knowledge stocks that provide uniqueness to the company (i.e. Coca Cola's recipe is confidential know-how; shape of the bottle has its own design rights, trademark as a name Coca-Cola).

IP portfolio securitisation is a special case of asset-backed securitizations and invented as a novelty in the markets that provides benefits to both sides of investment: IP originators and IP investors. One of the important aspects in benefiting from intellectual property assets is to have a true analysis of those assets. Therefore, before using intellectual property assets in financing, there needs to be a due diligence. Due diligence is a common term that needs analysis both financially and legally, as company due diligence and IP due diligence differs from each other. A company due diligence aims accurate and fair valuation of the company for M&A activities, company buyouts, attraction of Venture Capitals etc., while IP due diligence is necessary for analysing the intellectual property assets of the company and valuation of those assets for later use on licensing, IP securitisation, leveraging and other means that would use IP assets in value creation.

This study aims to investigate the IPRs as a source of finance and compare the benefits from IP-based financial products to standard leveraging methods. IP rights are not just legal means that legislative authorities have to deal with. Indeed, they bring value to company and unlock the new sources of finance for the business. So, in order to truly benefit from its IP, a firm must have a strong legal and management team and a strong cooperation between them. This extracts benefit from existing and potential IP of the company. This ensures the better research and development, thus more innovation and at the end, true valuation of the IP in order to use it as a source of finance. The rest of the paper is structured as follows. The second section analyse IP securitisation, section three gives details about historical IP securitisation deals, section four examines different valuation and pricing strategies, section 5 concludes the paper.

2. IP securitisation: A special case of “securitisation”

As the Subprime Mortgage Bubble collapsed with a global contagion, instruments that will be securitised must be deeply analysed. After Mortgage Crisis, ABSs (asset backed securities) are on the spot and are closer to be blamed in every potential loss. The differences of IP securities in comparison with the other form of securities are required to be examined to see the potential behind IP rights. IP portfolio securitisation was first invented as a novelty in the market of securities that provides benefits to both sides of investment: IP originators and IP investors. IP originator is the holder of IP rights, whereas IP investor, a financial institution that holds wide range of IPs in its portfolio. Those benefits are interest payments (as an expense) and amortisation that are fully tax deductible. It provides off-balance sheet operation as there is no place to IP rights in balance sheet. So only the royalties from IP is written as earnings to IP originator's balance sheet which will mean there is no cost accrued for issuer. Other benefit maybe the most important one is IP securities are transferred into SPV (Special Purpose Vehicle) which provides them to bankruptcy remoteness. So, there is no risk of bankruptcy as there might be in other forms of financial instruments. There are some factors affecting the feasibility of IP securitisation. Characteristics of asset, transfer of asset, credit enhancement, legal matters for both sides, security interest valuation are some of those factors. Those factors should be addressed by good teamwork of the management and legal departments of the companies. These factors are the micro-level factors that affect the IP deals.

From a macro perspective, it can be said that developed countries have better IP protection compared to developing countries. Because of their economic structures, developing countries do not have sources and/or technologies to allocate for R&D (research and development). As the case is that, it is sensible to expect developed nations to be pioneers in medical inventions, designs, technological developments and so legal holders of IP rights and the rest to be followers. Therefore, innovative financial instruments using IP rights are usually started by developed countries. Investors have different demands in terms of risk and return. So, an IP portfolio with wide range of risk-return options will cover the requirements of different investors. IP securities are yet to be integrated to world market as standard securities do. Different countries and different industries would provide different opportunities in terms of risk-return. When the legal protection of IP rights is provided globally, it would be possible to treat IP securities as standard forms of investments and even trade them such as it started in Chicago based Intellectual Property Exchange- and the index

is called IPXI. Again, the choice of investment depends on the investors risk profile. If an investor requires debt-based financing, then the choice would be IP bonds. And if the investor focuses on equity-finance, investing in an IPR based stock in Chicago type IPR exchange would be beneficial.

2.1. The IP rights: To securitise or not to securitise there's the point

IP is a subject where law and finance should work in cooperation. As there are many unforeseen legal issues as well as foreseen ones for all parties involved in transaction. As revenue stream from royalties are hard or even impossible to forecast, there are some points which are hard to foresee at the beginning of the IP securitisation and thus hard to take any legal precautions from the start. So, the more important question is how to construct IP securitisations, sale of IP to the Special Purpose Vehicle (SPV). If we consider the existence of the utilisation of the even weather forecasts as a derivative instrument to what extent would it be feasible to use IP to develop a financial instrument. Indeed, there is IPXI (Intellectual Property Stock Index) which is an exchange based on corporations that has high amount of patent portfolio that build high portion of their market value. This index was created by Ocean Tomo; an Exchange-Traded Fund (ETF) based on this index trades on New York Stock Exchange (NYSE). However, volume may be high because of high value of IP so it's better to develop a comparison ratio for comparing major selected stock indexes with IPXI. The ratio might be number of transactions/Volume or other alternative that will lead the results of the comparisons clearly through further discussion. Trading transaction may be limited by enforcing the IPSWAPs, in other words SWIPs, only between equal or different but equally carrying potential for future cash flows considering the time constraint of IP transactions.

Although IP securitisation transaction contains the risk transferal from the originator to the investors (i.e. bondholders); to what extent could any investor be interested in any transaction that he/she carries the entire risk is arguable. Presumably, investor invests on bonds that are backed by IP with awareness of the risks, however it is a two-way process, the willingness to carry that risks depends on the rewards that bonds present (i.e. earning of bondholders from that investment). Because it'd create a value that is not reflected in book value and balance sheet of the entity (as the IP rights' book value still would worth same from the legal perspective, the pricing would be based on company's sales or maybe successful marketing strategies in terms of being able to demonstrate their innovation or existing IP to consumers)

Everything may seem perfect and well-functioning while in reality there might be other external factors that might overshadow the system's functioning. In order to understand those factors affecting IP deals, we need to investigate the case of Bowie Bonds. When securitised, David Bowie's albums turned into \$55m of Bowie Bonds, offering a 7.9 per cent annual coupon, with maturity of 10 years. The bonds were "self-liquidating", meaning the principal declined each year. Bowie bonds represented one of the first instances of a bond that used intellectual property as the underlying collateral. The bonds were appealing to investors because they presented what was at the time viewed as a steady long-term investment. Also, the bonds were purchased by investors who seized the opportunity to own a piece of a favourite rock star.

In addition, top credit rating agencies, such as Moody's Investors Service, gave the bonds an investment grade rating, indicating that Bowie bonds were subject to a low risk of default. However, Bowie Bonds because of the illegal music downloads (Napster), no one used to get revenues from the industry and Bowie Bonds have been downgraded to junk bond status (basically sub-prime level). Another reason of downgrade might be about one insurer of the deal that's name not mentioned was downgraded and that is why Bowie bonds was also affected by that. So, it is possible to see that the credit rating agencies play a vital role in the success of the securitisation process. Normally, revenue streams are exposed to risk as they depend on consumer's music taste. In that sense that does not suit with the predictable cash flows from revenue condition of securitisation. In Bowie Bonds, however, the deal was backed by royalties of his albums before 1990 that makes a predictable cash flow.

There are points that court takes into account while considering 'bankruptcy remoteness' of IP deal, reversionary interests may lead into losing bankruptcy remoteness feature. Although there are drawbacks in IP securitisation, those can be overcome by 'bundling' and creation of 'tranches'. Creating tranches that will be diversify the investor types in terms of risk appetites and will save the deal from the risks such as potential destructive effect on downgrading; as there will be different tranches that were graded with different notes according to their risk-return. Potential destructive effect of unforeseen market conditions such as happened in Bowie bonds can occur. In case of Bowie bonds, the illegal music download had a destructive effect on the revenues of music industry and caused Bowie bonds to get downgraded by Moody's in 2004, lowering the bonds from an A3 rating to Baa3, one notch above junk status. However, the advent of legal online music retailers renewed interest in these securities in the latter part of the decade. The Bowie bonds

matured and were redeemed in 2007 as originally planned, without default, and the rights to the income from the songs reverted to Bowie.

Different ratings involve different risks therefore the return will be different and will involve various choices that investors choose according to their predictions over the bonds' future. For instance, it was not so possible to foresee the illegal music download was coming and the circumstances it would create. However, bundling according to [14] would create better outcome for securitisation of IP. Bundled bonds may help to reduce the risk of bankruptcy. The working mechanism of bundling and tranches are different as opposed to their service to same or similar aims.

Bundling mechanism can be stated by explaining 'the hypothetical bundling of four weak originators' in order to create one bond that's bundled [14]. As discussed by [14], a traditional "Bowie Bond" could be readdressed by creating a one strong bundled bond. Suppose that there is a hypothetical music group of four. Each members of the group of four (band separated on 1972) are individually unable to securitise as their sales are not sufficient but combined their own solo albums after the band separated plus sales of group albums since 1980 would be feasible for providing regular cash flow. This whole process also saves the deal from bankruptcy implications. More originators will make the bond less likely to be destroyed in case of bankruptcy of originators. So, it may provide a cure to anxieties of various parties in that type of transactions (such as rating agencies, bond purchasers, guarantors of the notes generated) that the bankruptcy of the asset would lead bonds into a hazard. So, there is no reason to be anxious up to two members' bankruptcy as bundled assets would still cover the investors' stake and the rest would still be enough for four members when it is shared. However, danger arises if more than two members' bankruptcy. Because each member has $\frac{1}{4}$ stakes of sale recording; in the case of bankruptcy of more than two as the bonds will still be paid, the remnant for each party will be small when it is shared between four. Above all that, bundling still would provide a better solution than non-bundling as each of those members would not be able to raise a securitisation deal for themselves and unable to achieve a leverage.

'Tranches' have the same purpose with bundling however they work differently. When an IP securitised bond is created with tranches at least one tranche will have higher rating than the others, preferably AAA, that will tend to increase the feasibility of IP deals and its success in attracting investors. That will also tend to increase the rating of whole deal; the deal otherwise would be rated lower than that and would never have a chance to be rated AAA. As studied by [25] and report by [10], Dunkin' Brands could be an example, as it bundled trademarks, franchise royalties, real estate. It was a whole business securitisation with a leveraged buy-out (LBO). LBO was within three private equity firms Bain Capital, the Carlyle Group and Thomas H Lee Partners — buy Dunkin' Brands from Pernod Ricard. Assets were used as collateral which in turn afforded \$1.7 billion, total acquisition price. \$1.5 billion of senior fixed rate notes, \$100 million of subordinated fixed rate notes and a \$100 million variable funding senior notes were issued in that securitisation. Ambac Assurance served as a guarantor to senior notes, and the deal was rated AAA by S&P and Aaa by Moody's. The key point is that the assets securitised in that deal were type of assets that needs to be 'managed' in order to exploit cash.

Given examples from [13] about copyright infringement that makes securitisation dangerous are more about infringement cases in music industry. Campbell v Acuff Rose case for instance was related to the 'sampling' which is generally used in rap music. Actually that is presented by [13] for the artists that do hip-hop or rap music are unlikely to succeed in attempts to securitisation of their IP, the reason is that sampling is a method that uses same music and create another song and that is the point where the issue arises such as the case of Campbell v Acuff Rose music where at the end court took the decision in favour of the sampling being a derivative rap music and it was not infringement. Because of those kinds of potential drawbacks, the financial players are not in favour of deals that would be backed by royalties of rap or hip-hop singers.

Ownership and security interests have impact on value and viability of IP (e.g. copyrights and their royalties in the music industry) in securitisation. Perfection and attachment of security interest are another legally important point. Security interest must provide right to the party holding the interest. Once bonds default, the party holding security interest can claim her/his rights against other creditors. Also, he/she must be able to reclaim the ownership of the copyrights and other receivables. Where there are competing claims, the claims should be perfected before, in order to own priority among other claimants. Attorneys must prove that 'security interests granted to bondholders' linked to royalty backed securities (RBS) and not have been 'sub-ordinated'.

Benefits of RBS are stated as follow by [13] are as follows: Pooling of RBS into a RBS portfolio; Royalties from different artists reduce the risk of a single artist to lose the popularity and therefore reduction in royalties. However, pooling method diversifies risk. In some sense Fairfax's 'pooling of RBS' is similar to 'bundling' that Grant suggests

in his work [14]. Fairfax suggests that pooling assets from different entertainers would provide a diversified portfolio, so recording companies would participate fully on to securitisation and the RBS will be available to public, that have been only available to large companies, unit trusts etc. [13]

Securitisation is not unique to music industry. It also may provide benefits to various companies from different industries. For instance, small companies may have some difficulties to achieve credit loans or high technology research and development cost is high, hard to make money till you actually earn revenues. These companies otherwise should trade (sell) their patents or other IP to big companies with royalties or licencing fees over years. These companies instead may benefit from securitisation without any worries of bankruptcy because the deal will raise money for future with using income stream in securitisation.

There are some legal issues as follows:

-Loss of control of assets

-Requirement to have enough income streams that are predictable and regular for securitisation [8]. Solution is a bit different than [14]. Which he suggested was bundling however [8] suggests to pool of diversified group of loans together that are not dependant to same IP assets. This is in a sense seems like Grants suggestion; but is different because Grant did not add the necessity of 'loans not being dependant to same IP asset'. In fact, in the offer of the bundling that is four members of an old band and their royalties from solo albums as well band albums in common.

-Built in costs: Rating agency fees, underwriting, structuring and trust fees, premiums to third party guarantor.

If all those are overcome IP securitisation may present good income.

Another important point to be questioned is supervisory: On insurer of the deal. (For instance, banks in EU are now supervised by ECB. It is responsible for supervision and creation of financial stability would be maintained by a subsidiary of ECB called EFSF European Financial Stability Facility in the frame of European Stability Mechanism (ESM). So, in the case of an IP securitisation deal there will be a need for supervision for the financial institutions that are involved in deal which is going to be substantiated by the mechanism mentioned formerly.)

The reasons of British artist taking part in those deals are stated by [8]: They are many well-known rock bands that their albums still sell in substantial amounts even after many years. Another reason is they possibly have more control over their rights, royalties, their tendency over pursuing potentials of their business are higher.

2.1.1. Regulatory framework: Credit Rating Agencies, Auditing, Due Diligence, Insurance

[16] has reviewed the regulatory framework after global crisis, as a result of Credit Rating Agencies (CRA) seem to have some conflicts of interests. Structured finance market was described to be "rating-driven" by Johansson and considered to build up an important portion of CRA's income. When it comes to the rating in structured finance, the prementioned "conflict of interests" comes to the stage where high level of interconnection in pre-rating step and the issue is that structuring the deal according to the directions of CRA to be granted to a rating they would like to. From CRA point of view it's been called "transparency", yet from Johansson's point of view it's the source that creates conflict of interest. Furthermore, Johansson points out the lack of "universally understood" method of valuation that CRA uses.

3. Historical Cases of IP Securitisation

3.1. Securing the IP rights vs "Securitisation" of IP assets

[9] question how some firms hold their dominant position in the market in this competitive information age. The paper examines the case of Walt Disney, and its re-release of old animations such as Snow White. Walt Disney applies a strategy that would provide "continuum of its IP rights protection". It is suggested that continuum can be provided by any re-visitation of a product (e.g. Snow White). Early in product life cycle patents, copyrights and trademarks and numerous forms protect the IP, however as the time passes some of those expires that will risk the IP protection of the product. So, the suggestion is clear, it should be actively re-used in order to transfer the IPRs to a trademark that will last for indefinitely. It is suggested this continuum would provide "securitisation" of the ideas and innovations. However, the term of securitisation is not used as the financial means, it is used as securitisation of ideas in order to provide continuum of IP protection via different strategies, per se. On the other hand, ensuring a valid IP protection generates the possibility of creating an IP securitisation deal for financial purposes.

The first exercise on the use of intellectual property rights as a source of financing is seen in David Bowie's Bowie

Bonds who earned 55 \$ Million by securitising his royalties of the 25 albums before 1990. [32] deeply analysed the case of Bowie Bonds in a way that could illuminate the securitisation cases for future. [4] and [1] discuss that: companies such as Disney, Nestlé, Calvin Klein etc. used their copyrights as collateral to raise debts however those cases were different than Bowie Bonds as Bowie Bonds is the first case of IP securitisation. The former ones are forms of collateralised debt while latter is first IP securitisation.

One of the best examples that literature suggests is the case of IBM and Xerox. Richard Thoman, when he was CEO of the IBM he focused on intellectual properties of the company and boost its patent royalties by %3300 from 1990 to 1999. And after he starts at Xerox he used the same procedure to boost Xerox benefits from IP (see [27]).

One of the other important cases is Royalty Pharma's HIV drug called Zerit and the deal with Yale University which provided the university great amount of earnings that helped it to build a new building. The case is analysed by [26] and [5] and fuzzy logic used, and then three-sided graphs developed to show the analysis results. Various studies agree that use of new classes of IP securities as a source of finance will be spread.

[15] search innovative ways of raising funds. One of the concepts that takes attention is 'Whole Business Securitisation'. It presents opportunity to raise debt that is secured by all or substantial parts of a company's assets. It allows that in cooperation with company's stakeholders. Main characteristic of it is that it presents a right to investors to manipulate operating conditions of the company that is led by business strategies of the company. Therefore, those strategies cover branding, customer services, stakeholder relationships of the company and the paper concludes that there is value adding potential of stakeholder approach to whole business securitisation (WBS).

Whole Business Securitisation (WBS) is also known as IP securitisation, as it is suggested by [25], [15] that Dunkin Brands and Domino's are the retail brands that implemented WBS. IP securitisation provided to have lower weighted average cost of capital (WACC) than an average buyout would impose. [25] pointed out the WACC of an IP securitisation to be Libor plus 22 basis points while WACC of the buyout of the "Hertz" was Libor plus 200 basis points. In order to be a potential candidate for ABS, and IP securitisation, strong cash flows are vital. If we look at how Domino's IP securitisation occurred, the steps are as per below:

The first step is setting up a SPV which in this case was "Domino's Pizza Master Issuer (DPMI) LLC."

And then the control of securitised assets is transferred to note-holders. Notes that were backed by revenue generating assets of the company (that includes domestic royalties, product distribution agreements and supply chain, licence agreement, most international income) were issued by DPMI.

Moreover, the notes had fixed rate with no amortization for 5 years; with two possible 1-year extensions; senior debt is wrapped with insurance.

Furthermore, debt service coverage ratio (DSCR) which is equal to the ration of collections over senior interest expense (the only financial covenant); and normalized cap-ex (capital expenditure) in the \$20–30 million range annually were some other features of those notes.

Components of securitised debt at Domino's IP securitisation deal as follows:

Securitised Debt

<i>Debt amount</i>	<i>Interest rate</i>
<i>\$1.6B senior ABS debt</i>	<i>5.961% cash interest rate</i>
<i>\$0.1B subordinated debt</i>	<i>7.629% cash interest rate</i>
<i>\$1.7B total funded debt</i>	<i>6.059% cash interest rate</i>

\$150M revolver facility (The revolver facility allows the borrower to borrow, repay, and reborrow as needed over the life of the loan facility)

Another IP backed securitisation deal that took attention was Yale University's securitisation deal with BioPharma. They used patents to create a patent-backed securitisation. The details of the latter transaction can be found at the following deal sheet:

Issuer: BioPharma Royalty Trust, A Delaware Business Trust, Owner Trustee

Originator: Pharmaceutical Royalties LLC, a Delaware Limited Liability Company

Seller: "Major US" University (AAA S&P rating)

*Securities Issued:**\$57.15 million senior loan,**\$22.0 million mezzanine loan,**\$21.16 million equity**Underwriter: Royalty Pharma AG**Credit Enhancement: Overcollateralization (from mezzanine notes and equity for senior notes)**Collateral: 70% royalty interest in the patent and licensing agreement between University and Bristol-Myers Squibb Company (AAA rating) pertaining to the anti-retroviral use of 2', 3'- dideoxy, 2'3'-dideohydrocytidine, and 2', 3'-dideohydrothymidine and compositions described in the U.S. patent applications serial numbers 911,200 (9/24/86) and 942, 686 (12/17/86). Zerit is the BMS brand name for this application.**Asset Coupon: LIBOR—Hedge Agreement, swap to fixed rated rates with West LB rated(AA+/Neg/A-1+)*

[11], [12] also study on patent-based securitisation in pharmaceuticals, working on Royalty Pharma Trust's securitisation case in particular, by telling about specific advantages, risks, asset characteristics etc. of pharmaceutical royalties. [28] study on the risks of technology-based IP securitisation. The potential risks are analysed in details and the questions that need to be asked for determining those risks are stated. Paper mentions that a practitioner who deals with this type of transactions should broadly consider following factors: Amount-whether the technology-based IP security costs more than its yields, volatility, duration-whether the materialisation of inflows occur in time. There are many risks to be considered and addressed when purchasing technology-based IP for securitisation such as market, commodity, financial, business, and asset-specific transactional risks. Nevertheless, the study categorises the risks according to their significances as macroeconomic and demand risk, technology risk, collateral risk, illiquidity risk, credit risk, structural risk.

3.2. Case of Developing countries: Concept of "Invest in Asia"

[19] presents an interesting point of view to the securitisation, particularly IP securitisation. He states that businesses should not abandon IP securitisation because of the credit crisis. Instead, he argues that this method could be applied in Asian markets such as Singapore, Vietnam, Thailand etc. He focuses on each of those countries related acts, defines the potential advantages of those markets and states what the requirements of the IP securitisations in Asia are in order to achieve a success in IP securitisations.

[33] studies on IP securitisation in Japan. He clearly states that IP securitisation in its developing process in Japan, and many companies are using IP as a source of finance. He suggests the government must issue suitable legal, disclosure and valuation framework and a regulatory framework. He exemplified the usage of IP in Japan as source of finance. His first example was a non-recourse loan transaction in February 2002, that was backed by the television broadcasting rights of a series of popular movies. The second example states the first patent securitization transaction in Japan. A special purpose company under the Asset Securitization Law which is called *Tokutei Mokuteki Kaisha TMK* was realised in March 2003 followed by a nonrecourse loan transaction backed by videodisc and videocassette rights in October 2003.

By focusing on a pharmaceutical innovation case of AstraZeneca's in China, [34] says that in China ,some innovations on IP rights have started, AZ can benefit from staying in China as it is the country where human labour and R&D is lower and therefore it is stated that AZ can benefit from expanding to the pharmaceutical industry in China. Patent law are getting stronger now, some precautions are taken such as stronger patent laws etc. in order to block imitation so in future, AZ can have cost benefits in here on the means of R&D outsourcing from China.

Small and medium-sized entities (SME) may have difficulty in achieving the sources of finance, due to their low credibility and lack of total assets as collateral. Therefore, IP financing presents new opportunities for those firms.

[7] investigate this subject in China's SMEs. Paper first presents the current state of IP financing both internationally and within Chinese market. Then it offers some improvements on intellectual property financing for SMEs. It is stated that the government should spend more effort to provide a legal basis, development of the exchange market, development of intermediary agencies, in order to promote the intellectual property financing. According to [7], the

main constraints of IP financing in Chinese SME are:

- Incomplete legislative system of intellectual property mortgage financing,
- Own characteristics of SMEs restrict the development of intellectual property financing,
- Lack of financial intermediation services support,
- Capital markets conducive to provide intellectual property financing services for SMEs are inadequacy.

Then the solutions suggested are:

- Improvement on Bank's Loan Management and establishing a multi-level financing system of intellectual property
- Improvement on credit guarantee mechanism for intellectual property
- Exploring new ways of intellectual property Securitization

[20] stated the impact of US firms outsourcing their manufacturing processes in China. He stated the fact Chinese rising economic power. In that way, key methods and other key elements of production passes to Chinese market that create a rival for US on the global market. Article investigates some of the strategic relations of US and China and impacts of outsourcing and technology pass-through on Chinese regional development. I believe that China's increasing power in being a centre of production impacts its intellectual properties as their knowledge on specific field of productions, processes and product designs are increasing due to that outsourcing. Because of the lower labour costs in developing economies, China is especially the one of the mostly preferred countries for outsourcing.

[31] point that companies conduct business in China, face the threat of piracy. It is a well-known fact that piracy is a major threat in China and is found in every sector. Article, however, tries to point out that the business opportunities in China are more than the threat of piracy. They investigate IP rights and the business structure in China. Analysis of legal system in China and discussion of common problems faced by companies that operate in China are the main focuses of the study. Finally, study suggests some tips for companies operating in China and those will operate in future.

3.3. Developed Countries: IP deals in Europe

[18] studied on loan securitisation in SMEs in Europe. Study attempts to explain the principles of SME Securitisation and why it is beneficial to SMEs. It is stated that a healthier financial system in which the issues such as moral hazard, information asymmetries reduced and risk taking is well-analysed, SME Securitisation can substantially contribute on to SME's access to finance. On the other hand, [3] stated the importance and specialness of protecting the intellectual property in service sectors, as it is called in article 'Knowledge Intensive Business Services (KIBS) sector'. Article has an impact on the literature by focussing on risk and opportunities of IP managing IP by analysing one of the major reinsurance company called "SwissRe". The importance of SwissRe is that it is one of the very first organisations that created own patent department and sustain a legal protection strategy.

[22] studied about the IP securitisation in Germany. Study first gives a background of IP securitisation in general then they particularly studied on Germany. It is stated that in the German securitisations, the transactions are not announced, placed privately. However, there are some exceptions such as long-established liquor brand "*Asbach Uralt*" in 2006. Other examples cover a Patent-backed fund "Patent Select I" by Finance Systems in 2006 with a reported volume of €20 m., a publicly placed music publishing fund, a sale and lease back similar structure for the brand "*Goldpfeil*" and a securitization based outsourcing of a R&D activity of a German car component manufacturer. Also, the recently published "10 Principles of Brand Evaluation" indicate an increasing level of interest and activity. However, it would be overstated to mention Germany as a hot spot for related transactions as of today.

The underlying German landscape namely for media financing was influenced in recent years by a weakening economy, in comparison to the rest of the European Union modest growth, and as a consequence of the overheated stock market and the downturn in 2000/2001 by modest, if not little M&A and IPO activity in the media arena. Only as of 2006 there was a remarkable increase in related takeover and finance transactions. The repurchase of stock by "*the Bertelsmann Group*", the partial refinancing through the disposal of "*BMG Publishing*" to "*Universal*", the acquisition of the majority of "*ProSiebenSat.1 AG*" through *KKR* and *Pemira*, to name the most recent and prominent ones, reflects an increasing level of regaining activity, awareness and confidence. The sheer number of participants from the finance industry in the Berlinale film festival in February 2007 may serve as yet another indicator where the market moved. Other transactions which were announced were the funding of *Senator AG* by US investment bank Capitoline Global Finance with up to € 50 m. (partially backed by future revenues from Senator's library and slate)

as well as the takeover of the TV format producer *Me, Myself & Eye AG* through *Permira* in February 2007 and, notably in this context, the takeover by television producer *Ode-on AG* through the previous *media fund GFP* which turned a publicly placed media fund initially set up to co-invest in German content, into an investment vehicle taking over a stock listed production entity.

4. Valuation, Pricing and Strategies of Intellectual Property Management

[6] studied the pricing and valuation of IP securitisation deals by using “Jump-diffusion Model”. They used a stochastic model and test using Monte Carlo simulations. [23] state in the current era, the creation of knowledge has become a key factor that distinguishes firms and provides competitive advantage over others. In order to attract financial resources accurate valuation of IP assets are vital. Especially, in IP securitisation as well as in the more conventional financing methods, accurate valuation is vital. According to [23] there are some requirements to assess the intangible assets of the firms. Those are: rationality, objectivity and neutrality, sufficient amount of useful information. Intangibles generally undervalued when those requirements are not met. Paper concentrates on two important factors: due diligence of IP assets and evaluation of the portfolio of IP assets. First factor that is important is ‘Due diligence of IP assets’. Due diligence has two aims: The identification risk of investment about to be made, and ‘analysis of free use of intellectual property’ that means a pledge that there are no third parties who have a claim on the IPR. Due diligence of IP is completely different than conventional corporate due diligence. Due diligence of a patent, trademark or copyright needs to examine the following terms that were suggested by [23]:

“The regularity of payments related to registration with the competent office;

Proper registration of the same;

The lack of claims by third parties which may hinder its use;

Full ownership of the asset in question by the transferor;

The scope and any limitations associated with its implementation;

The absence of any infringements in the market that may undermine economic returns linked to the asset;

The eventual licensing of the assignor;

An analysis of the asset’s remaining life. ”

Going back to second factor that is focused on in the paper was the evaluation of the portfolio of IP Assets. [23] argue that there are at least three requirements that the evaluation should meet:

“Rationality: the method should be conceptually sound and consistent with theory;

Objectivity: the method should be applicable in practice and evidence-based;

Generality: the method must disregard the characteristics and interests of the parties involved.”

These requirements can best be met by an expert who is technically capable, independent, honest and spends serious efforts to reflect the accurate value in the evaluation. The strategic value of an intellectual property portfolio is therefore the sum of the economic value of the portfolio, economic benefits from retractable properties of this portfolio, and incremental opportunities related to it. This can be stated as the following expression:

$IP_s = IP + B + O$ (where IP indicates the economic value of IP asset, B indicates retractable economic benefit from IP, namely direct or indirect benefit from IP such as ownership of brand and trade secrets. O indicates incremental opportunities arising from IP related to inventions, innovations, distribution protected by patent blocking strategies. To sum up, [23] suggest that the strategic value of IP can be efficiently increased by diversification of IP portfolios that belong to firms with key IP assets, as it will create barriers to rivals that plan to enter to the same area ,that is also reflected in the expression above by the letter ‘O’ as incremental opportunities.

[24] state that there are two main strategies in patent decisions: Defensive and offensive. Defensive patents is a sleeping patent that has been acquired in order to prevent rivals to enter same area while offensive patents stand for the idea of commerciality of the patent. Offensive patents strategy defends that firms can create more revenue from commercialisation. The two methods of commercialisation are licensing and trade. Licensing can be via cross-licensing or patent pools and relevant in technology intensive companies while trade is another way of commercialisation. The decision is whether allow the expiry of patent or trade it. So the third one can as an addition to [24]’s could be stated as using IP actively as a method of finance. This needs a combination of defensive and

offensive strategies. In other words, in order to be able to use IP in financing, first thing a company needs would be preventing rivals from using the patent. To do so, would be possible by following defensive IP strategies. The second thing is then would be using offensive strategies as the main aim is the commercialisation of the IP to generate incomes that would be backing IP securitisation deals. Therefore, I believe [24]'s two-way classification of patent strategy should now be replaced by a three-way strategy.

As there are many developments on the use of IP in finance, one of those is the auction pricing the patents. There is an attempt in the literature to see the factors affecting auction prices of patents. [17], attempted to find the fair value of IP, by using Black-Scholes Options model. He considered one has right to hold the IP, time to develop it to the next stage, considering cost to develop etc. in order to conduct a real option-based pricing for IP. [30], worked on dynamic transfer and renewal of patents in other words trading decision vs. expiry decision of patents considering age of patent, number of citations, patent generality, whether it's been traded before, then weighting each patent by number of patents granted in order to smooth merger waves and business cycle effects.

4.1. Alternative Method of Patent Valuation: Options –real options models

Some authors who worked on patent pricing methods concluded that patents can be priced in the most accurate way if patent auctioning methodology is used while others believed that patents can be best priced if they are treated as real options and thus priced according to Black-Scholes Options pricing model. Some others, though, prefers to concentrate on 'the decision making between the renewals of patent vs. trading'.

[17] suggested that IP is a major source of intangible value and its fair valuation should be ensured. The Financial Accounting Standards Board (FASB) publishes guidelines to direct towards that. Formerly a study for the valuation of nearly 8000 IP assets has been conducted by [29], that used Black-Scholes options pricing formula. [17] however, studied on 8000 IP assets for valuation and used the technique that is called *TRRU metrics*, that means his methodology differs, yet still the results are consistent with the ones would be obtained by Black-Scholes options pricing formula. Also, he points out the drawbacks of the valuation techniques. Using traditional techniques such as market/book ratios, Tobin's Q are too rough in terms of stating meaningful financial reporting. Therefore, applying the valuation strategy that is offered in the study becomes considerable.

[21] study sleeping patents and real options. The study cites [30] as it was more of a pioneer to option pricing adaptations onto patents. However, it shouldn't be ignored that it was also suggested by [17] can be valued most fair way by using Black-Scholes Option pricing. However, that study differs in the aspect that it develops 'Real options game approach' in order to examine the patent-investment race between two rivals (one is an existing firm, second is new entrant) in the product market with profit uncertainty. Specifically, they investigated the situation called 'sleeping patents' that refers to the patented products are not instantaneously introduced to the market. They attempt to present the optimal strategies for that patent-investment race, such as existing firm can block new entrant by patenting some of the substitute products before new entrant do so.

[2] is one of those authors who defends that traditional methods of valuation of IP fails to measure the IPs in a way that will present their accurate value. He suggests that Black-Scholes options pricing can be applied to pricing of patents and patents have features that can be thought as 'real options' as they present different options to holders, such as decision whether to commercialise the patent with a new product launch, to license, to renew, to expand internationally by international patent applications, to hold the right of legal defense, to let the expiry. All those decisions are costly to firm and firm would analyse the cost and benefits of them. Afterwards, the decisions would be made on to buy the option on today's cost for using in future as 'call option' or to raise the right to sell the options to be paid on according to value of asset 'put option'. Right to defer commercialisation, to renew the patent, to expand internationally are some of the decisions that may be classified as 'call options' while to license, to let the expiry, to hold the legal defense right are 'put options'. Some of those are American style options and others are European.

5. Conclusion

There have been various attempts to appeal investors with different risk appetites. Financial agents have on-going attempts in order to create different financial instruments. Asset backed securitisation was popular for decades and took attention especially in the recent global financial crisis which was caused by the collapse of mortgage bubble.

However, securitisation could be a useful method for extracting value added from intellectual property rights such as patents or trademarks. In this study, we aim to investigate intellectual property securitisation by looking at various cases starting from the famous “Bowie Bonds”. The analysis show that in order to reduce the risk of IP security different methods such as tranching or bundling should be applied to the security deals. Also, in order to fully benefit from IPRs, the IP assets should be priced accurately. This paper also attempts to examine different pricing strategies of patents such as real-options pricing. To sum up, IP securitisation still has profit potential as long as it is done by taking lessons from the global financial crisis.

References

- [1] Agiato, J. (2002). The Basics of Financing Intellectual Property Royalties. Berman, Bruce: From Ideas to Assets – *Investing Wisely in Intellectual Property*, 423–441
- [2] Alper, D. (2011). Patent Değerlemesi ve Reel Opsiyonlar. (Turkish). *Business and Economics Research Journal*, 2(1), 153–172. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=57455994&site=ehost-live>
- [3] Bader, M. A. (2008). Managing intellectual property in the financial services industry sector: Learning from Swiss Re. *Technovation*, 28(4), 196–207. <https://doi.org/10.1016/j.technovation.2007.05.007>
- [4] Bezant, M. (2003, March). The use of intellectual property as security for debt finance. *Journal of Knowledge Management*.
- [5] Calderini, M., & Odasso, M. C. (2008). Intellectual Property Portfolio Securitization: An Evidence Based Analysis. *SSRN Electronic Journal-Innovation Studies Working Paper (ISWoP)*, (1), 1–42. <https://doi.org/10.2139/ssrn.1314805>
- [6] Chen, H., & Shi, R. (2011). Pricing intellectual property securitization with jump-diffusion. *2011 2nd International Conference on Artificial Intelligence, Management Science and Electronic Commerce, AIMSEC 2011 - Proceedings*, 3172–3175. <https://doi.org/10.1109/AIMSEC.2011.6010238>
- [7] Chencen, & Yinwei. (2011). Research on intellectual property financing of small and medium-sized enterprises. *International Conference on Management and Service Science, MASS 2011*. <https://doi.org/10.1109/ICMSS.2011.5998543>
- [8] Chu, N. (1999). Bowie Bonds: A Key to Unlocking the Wealth of Intellectual Property. *Hasting Comm. & Ent. L. J.*, 21, 469–500.
- [9] Conley, B. J. G., & Szobocsan, J. (2001). Snow White shows the way. *Harvard Business Review*, (June).
- [10] DerivativeFitch. (2007). Asset Securitization Report: The Premier Guide to Asset and Mortgage- Backed Securitization (Vol. 7). Retrieved from https://www.bio.uni-frankfurt.de/fb/fb01/ifawz1/baums/Bilder_und_Daten/Arbeitspapiere/a0294.pdf
- [11] Dorris, M. S. (2003). The Securitization of Drug Royalties: A New Elixir?
- [12] Dorris, M. S. (2007). Pharmaceutical royalties: A new securitisation frontier. In *Global Securitisation and Structured Finance* (pp. 76–82). Dechert LLP.
- [13] Fairfax, L. M. (1999). When You Wish Upon a Star: Explaining the Cautious Growth of Royalty- Backed Securitization. *Columbia Business Law Review*, 1999(441), 441–488.
- [14] Grant, A. (2001). Ziggy Stardust Reborn: A Proposed Modification of the Bowie Bond. *Cardozo Law Review*, 22(1291).
- [15] Haaranen, T., & Nisar, T. M. (2011). Innovative ways of raising funds and adding value: A stakeholder approach to whole business securitization. *Business Horizons*, 54(5), 457–466. <https://doi.org/10.1016/j.bushor.2011.05.001>
- [16] Johansson, T. (2010). Regulating credit rating agencies: The issue of conflicts of interest in the rating of structured finance products. *Journal of Banking Regulation*, 12(1), 1–23. <https://doi.org/http://dx.doi.org/10.1057/jbr.2010.3>
- [17] Kossovsky, N. (2002). Fair value of intellectual property: An options-based valuation of nearly 8,000 intellectual property assets. *Journal of Intellectual Capital*, 3(1), 62–70. <https://doi.org/10.1108/14691930210412863>
- [18] Kraemer-eis, H., Schaber, M., & Tappi, A. (2010). SME Loan Securitisation An important tool to support European SME lending. *European Investment Fund-EIF Working Paper*, 7. Retrieved from http://www.eif.org/news_centre/publications/eif-wp_2010_007_smesec.pdf
- [19] Lai, S. (2009, April). Securitise your IP rights in Asia. *Managing Intellectual Property*, 09605002(188).
- [20] Lei, D. (2007). Outsourcing and China’s Rising Economic Power. *Foreign Policy Research Institute*, 51(1), 21–39. <https://doi.org/10.1016/j.orbis.2006.10.003>
- [21] Leung, C. M., & Kwok, Y. K. (2011). Real options game analysis of sleeping patents. *Decisions in Economics and Finance*, 34(1), 41–65. <https://doi.org/10.1007/s10203-010-0108-5>
- [22] Lütje, V. S. (2008). Recent Trends in IP Securitization - A German Perspective. *Linklaters*, 1–8.
- [23] Manfredi, S., & Nappo, F. (2012). The Valuation of Intellectual Property Assets in IP Securitization. *Proceedings of the 4th European Conference on Intellectual Capital: ECIC 2012*, 264–272.
- [24] Mathew, M., Mukhopadhyay, C., Nair, S. S., & Nag, D. (2012). An analysis of patent pricing. *Decision*, 39(1).
- [25] Nisar, T. M. (2011). Intellectual Property Securitization and Growth Capital in Retail Franchising. *Journal of Retailing*, 87(3), 393–405. <https://doi.org/10.1016/j.jretai.2010.12.001>
- [26] Odasso, M. C., & Ughetto, E. (2011). Patent-backed securities in pharmaceuticals: What determines success or failure? *R&D Management (RADMA)*, 41(3), 219–239. <https://doi.org/10.1111/j.1467-9310.2011.00646.x>
- [27] Rivette, K. G., & Kline, D. (1999). Discovering New Value in Intellectual Property. *Harvard Business Review*, (January-February), 54–66.
- [28] Roman, D., Sarlitto, M., & Mukhtiar, A. (2007). Risks to Consider When Purchasing Technology-Based IP for Securitization. *The Journal of Structured Finance*, 12(4), 61–66. <https://doi.org/10.3905/jsf.12.4.61>
- [29] Scherer, F.M., Harhoff, D., 2000. Technology policy for a world of skew-distributed outcomes. *Research Policy* 29, 559–566.
- [30] Serrano, C. J. (2008). The Dynamics of the Transfer and Renewal of Patents. *NBER Working Paper Series*, (13938).
- [31] Swike, E., Thompson, S., & Vasquez, C. (2008). Piracy in China. *Business Horizons*, 51(6), 493–500. <https://doi.org/10.1016/j.bushor.2008.06.005>
- [32] Sylva, J. B. (1999). Bowie Bonds sold for far more than a song: The securitization of intellectual property as a super-charged vehicle for high-technology financing. *Santa Clara High Technology Law Journal*, 195(15).

- [33] Takahiro, K. (2004). Securitizing intellectual property in Japan. *International Financial Law Review*, (2626969).
- [34] Yang, S. (2012). Pharmaceutical innovation: AstraZeneca's experience in China. *McKinsey Quarterly*, (1).