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CREATE Working Paper 2017/07 (March 2017)

Digitalisation and intermediaries in the music industry

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Abstract

Prior to digitalisation, the vertical structure of the market for recorded music could be described as a large number of artists [composers, lyricists and musicians] supplying creative expressions to a small number of larger record labels and publishers who funded, produced, and marketed the resulting recorded music to subsequently sell these works to consumers through a fragmented retail sector. We argue that digitalisation has led to a new structure in which the retail segment has also become concentrated. Such a structure, with successive oligopolistic segments, can lead to higher consumer prices through double marginalisation. We further question whether a combination of disintermediation of the record labels function combined with “self-publishing” by artists, will lead to the demise of powerful firms in the record label segment, thus shifting market power from the record label and publisher segment to the retail segment, rather than increasing the number of segments with market power.

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1. Introduction

Before digitalisation, the vertical structure of the market for recorded music could be roughly described as a large number of artists [composers, lyricists and musicians] supplying creative expressions to a small and decreasing number of larger record labels and publishers who funded, produced, and marketed the resulting recorded music and subsequently sold this to consumers through a fragmented retail sector. In other creative industries, most notably book publishing¹, digitalisation has led to increased concentration at the retail level but a possible reduction in concentration through disintermediation in other intermediate levels. The former can result in a successive oligopoly power with additionally distorted prices and harm to both suppliers (in our case artists) and consumers. The latter can potentially shift power to the artists by making by-pass of record labels a credible threat. In this paper, we demonstrate that similar observations to those in book publishing can be made in the music industry.

Digitalisation has led to a new structure in which the retail segment has also become concentrated. At least temporarily, we observe successive oligopolistic segments within the industry with the associated concern that pricing may be subject to double-marginalisation, i.e. a situation where the two successive levels add an oligopolistic mark-up to their costs, including wholesale costs. This prompts the concern that digitalisation may have led to further consumer detriment through higher prices without benefitting the artists. Even if that may be true, such distortion may be short-lived. A combination of disintermediation of the record label function as observed in other creative industries² combined with “self-publishing” by artists, will lead to the demise of powerful firms in the record label segment, thus shifting market power from the record label and publisher segment to the retail segment, rather than increasing the number of segments with market power. This paper analyses the most likely outcomes, focusing on the development of technology and in copyright laws.

The remainder of the paper is organised as follows: Section 2 maps the historical evolution of the delivery of music to the consumer to provide the necessary context of how we got to where we are. Section 3 describes the legal framework supporting the creation and commercialisation of music, including its recent development. Section 4 discusses the evolution in the market structure in the music industry, focusing on the effect of the evolution both in technology and legal rules. Section 5 provides some tentative empirical analysis of the degree of competition and in particular of focal prices in the pricing of recorded music. Section 6 offers some brief conclusions.

¹ See e.g. Niva Elkin-Koren, “The Changing Nature of Books and the Uneasy Case for Copyright”, 79 *George Washington Law Review* 101-133 (2010-2011) and Morten Hviid, Sofia Izquierdo Sanchez and Sabine Jacques, “From publishers to self-publishing: The disruptive effects of digitalisation on the book industry”, CREATE working paper, 2017/06.

² See e.g. Elkin-Koren, “The Changing Nature of Books and the Uneasy Case for Copyright”, 79 *George Washington Law Review* 101-133 (2010-2011) for a discussion of similar trends in the book publishing industry.

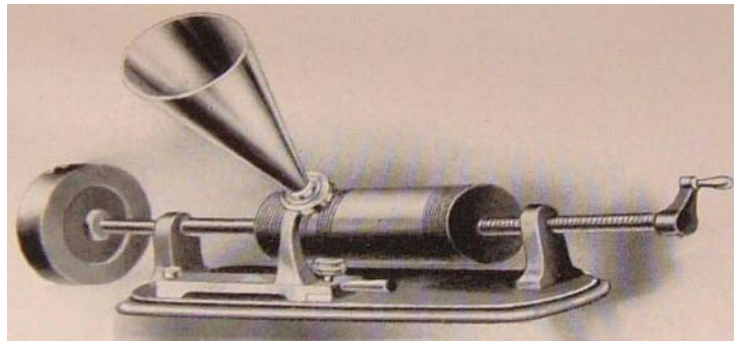
2. How the advancement of technologies shapes the music industry

The advancement of technologies has always played an important role in shaping the music industry. In order to appreciate the market structure of the recorded music industry, it is important to rewind time and revisit the important changes which influenced music production and consumption. While this section will merely provide an account of the technology changes by looking at pre-digitalisation production of recorded music and the role of digitalisation in recorded music, it will provide essential knowledge to understand the market structure and analyse the data in sections 4 and 5.

2.1 Pre-digitalisation production of recorded music

Ever since the invention of the phonograph in 1877 by Thomas Edison shown in figure 1 below,³ technological developments have continued to revolutionise the ways in which people listen to music.⁴ Essentially, the phonograph device consisted of a cylindrical drum around which was wrapped a sheet of tinfoil. Music was played by turning the handle which rotated and moved the cylinder laterally. The stylus could ‘read’ the pressure exercised by the recorded soundwaves on the tinfoil, which caused the diaphragm to vibrate and subsequently, moved the air in the mouthpiece, creating sound. While this represents the first playback device, it was not very good. The results were indeed barely audible.⁵

Figure 1: The phonograph



Source: http://www.officemuseum.com/IMagesWWW/Edison_Tinfoil_Phonograph.jpg

Alexander Graham Bell and Charles Tainter improved this device by developing a wax cylinder phonograph to replace the tinfoil-covered cylinder (aka ‘the graphophone’). Yet, this technology remained quite expensive.

³ Prior to the invention of the phonograph some people had invented devices capable of recording music but the phonograph is the first device which could both record and play music back to the user.

⁴ It is interesting to note that the evolution of playback devices also had an influence on music production. Prior to the phonograph, music was mostly enjoyed through public performances. As an audience could only listen to a few performances in a span of time, composers would write longer symphonies and operas. With the rise of playback devices, composers had to rethink the way they wrote music which led to shorter pieces and more basic melodies which could be recorded and played back in an audible manner.

⁵ For more on the history of the Phonograph, see Roland Gelatt, *The Fabulous Phonograph* (Cassell, 1956 & rev.).

Figure 2: the Graphophone



Source: http://www.cottoneauctions.com/uploads/display_item/61/1219ph63.jpg

In 1887, Emil Berliner invented the flat disc which made gramophone records real instruments capable of playing music in a cheaper and convenient manner. Indeed, Berliner not only invented the flat disc but also improved the overall device by using spring-motors which meant that the device did not have to be hand-turned anymore to play back music. It can be argued that by the early 1890s a rudimentary recording industry was underway. In 1896, Berliner licensed his invention to a group of businessmen, the Berliner Gramophone Company of Philadelphia, for its commercialisation.⁶ With the growth of an industry for record players, grew an industry for records themselves.⁷

Figure 3: Berliner's gramophone



Source: http://pxhst.co/avaxhome/7b/48/0009487b_medium.jpeg

Following the introduction of the phonograph, there was a shift towards more and more private consumption of music as more people are able to bring music within their homes. Within this context the rise of radio (1895) brought free music to those who were not able to afford a phonograph or other record

⁶ See e.g. Raymond R Wile, 'The Launching of The Gramophone in America 1890-1896' (1993) 24(2) *ARSC Journal*, 176-192.

⁷ First released in a five-inch version, then in a seven-inch up to finally a 12-inch version in 1903, a growing interest also appeared for double-sided records.

players of the time.⁸ A significant development in radio technology is the invention of the transistor in 1947 which allowed radios to be smaller and portable.

The next step in the evolution of how we listen to music was the ability of listeners to carry their music with them. The starting point is the invention of magnetic tape (i.e. the portable Walkman with headphones invented by Sony) in the 1970s.⁹ This invention undeniably rendered music consumption a personal experience.¹⁰ It is reasonable to say that the Walkman revolutionised the way people listened to music. Indeed, individuals were not tied to large and heavy record players but could easily take their music wherever they went. This evolution has continued in the digital age.

Figure 4: The first Walkman – Sony TPS-L2



Source: http://www.walkman-archive.com/gadgets/sony/tps-l2/sony_tps-l2_cat_03.jpg

2.2 The role of digitalisation on recorded music

It is commonly accepted that the digital age has changed everything in terms of how people listen to music. With digital music, we saw the decline of physical mediums on which music was recorded. In order to listen to music, listeners do not need any physical act except mouse clicks. In this context, listeners are increasingly expecting music to be mobile, unlimited and most importantly, freely available to all.

2.2.1 The compact disc

While the music industry really started to pick up with the invention of records, this industry was full-blown with the invention of the compact discs (CDs) in the eighties. The CD undeniably provided a much easier way for manufacturers to get into the business and a better-quality sound for listeners. Unlike tapes which required a sensor to turn the magnetic pattern into an electrical signal, the CD requires the use of a laser to read the encoded data on the CD. The reflections coming from the disc are then read by a sensor

⁸ The history of music radio is rather hard to trace but it is reported that the first radio to broadcast music was a college station in San Jose between 1912 and 1917.

⁹ The history of the tape can be traced back to 1958 where RCA invented the tape cartridge but this device was not successful compared to the 8-track tape.

¹⁰ This technological change has enjoyed a real success as it led to several variants including portable stereos, audiocassettes, tapes etc. all completed with headphones.

which transfers it into an electrical signal. Since 1982, the majority of new music releases have been released as a CD album.¹¹

Despite the various faults of this technology such as scratches, fingerprints or sunlight which lessened the user's experience, the CD remains one of the most significant leaps forward for the recorded music industry.¹² Consequently, most artists converted their back catalogues to be available on this new digital format as well.

2.2.2 MP3

The history of mp3 started as a challenge from a supervisor to his PhD student when Karlheinz Brandenburg was tasked to figure out a way to broadcast music over digital phone lines in 1982. By taking advantage of a psychoacoustic phenomenon, referred to as auditory masking, Brandenburg and his colleagues (known as 'the original six') invented an algorithm capable of isolating the sounds which are inaudible by the human ear from the sounds audible to further compress the file size of a recording without noticeable loss in quality.¹³ With the progression of technology, the algorithm became more and more complex, resulting in higher-quality music. The file extension '.mp3' was eventually created in 1995.

The same year, this technology was described as having the potential to destroy the music industry.¹⁴ While it is debatable that mp3 fostered a crash of the record industry, it shaped the future of how music is listen to.¹⁵ With the conversion to mp3 files, mp3 decoding software such as WinAmp were developed which were cheap (or free such as in the case of WinAmp) for computer users to download on their machines.¹⁶ Later on, mp3s increasingly found themselves on devices in the listeners' pocket rather than on their computers. Early versions of mp3 players presented rather limited capacity, only able to hold a very limited number of songs. The capacity of such devices have been expanding over time and more recent versions of the dedicated devices as well as other mobile devices on which music can be played, such as mobile phones and tablets, can hold vast libraries of music.

¹¹ There appears to be some controversy over whether the first CD album was "52nd Street" by Billy Joel or "The Visitors" by ABBA. The latter was the first to be produced while the former was the first to be sold. Both events happened in 1982.

¹² This technology also experienced several improvements such as the possibility to skip tracks which enhanced the listener's experience, better quality recording, and stronger resistance to dust or other particles. All changes were not a success though. See Sony's MiniDisc which ought to be more resistant aimed to outshine the CD as musical medium but it never did.

¹³ Given several issues, digital encoding continued and resulted in the MPEG-1 audio Layer III in 1992. This format was then improved into the MPEG-2 Audio Layer III in 1998.

¹⁴ For more on this see S. Witt, *How music got free* (Penguin Random House, 2015) chapter 1.

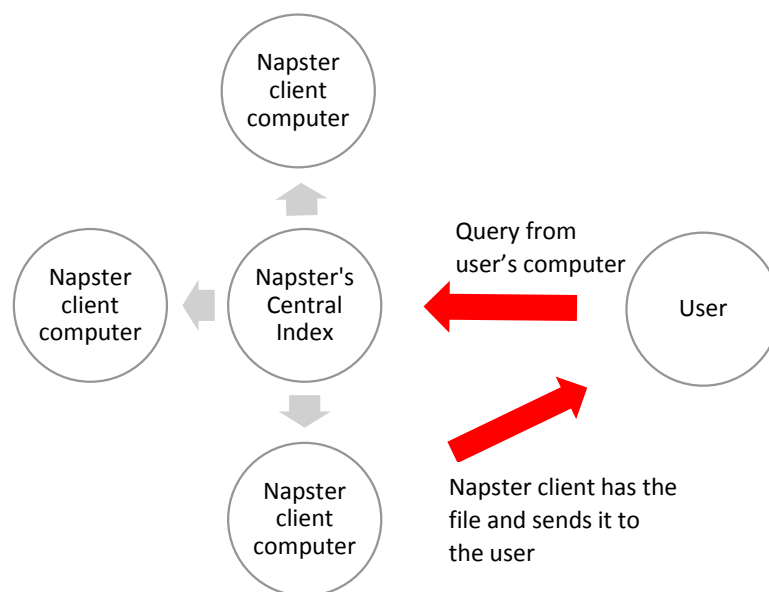
¹⁵ That something new will destroy the industry seems to be a recurring theme – so far, the predictions have been a long way off the mark. In any case, the policy concern is about the creative artists, and potentially the consumer, not the intermediaries. For example, the destruction of music is very different from the demise of the record company.

¹⁶ Conversely, the encoding software was rather expensive.

2.2.3 Peer-to-peer (P2P)

In 1999, Napster, the (in)famous pioneer of peer-to-peer (P2P) file sharing technology, initiated a true revolution in the consumption of music. By enabling individuals to freely share personal music collection with each other (initially mp3 files), this technology follows the idea of sharing music files with the world by connecting personal computers' contents into a global index available to other connected users (consequently, using a centralised system). Unsurprisingly, this technological evolution was widely criticised by various actors from the music industry, including artists, as no license from right-holders to use the protected copyright works was sought. For example, the metal genre band, *Metallica*, filed a lawsuit in the US after realising that one of their tracks which had not been broadcasted on radio, was freely available on the P2P file-sharing platform. Other artists followed and filed lawsuits once they discovered that their tracks had been released on the platform (e.g. *Dr. Dre* and *Madonna*). Simultaneously, the American musical recording company along with other recording companies filed a lawsuit against Napster on grounds of copyright infringement and contributory and vicarious copyright infringement under the DMCA.¹⁷

Figure 5: Napster Protocol



Briefly turning back to the lawsuit, Napster was accused of committing repeated copyright infringement by enabling users to upload and download copyright protected materials, resulting in potential losses of revenue for the music industry. As we know it, Napster lost the case in front of both the District Court¹⁸ and the US court of Appeal for the Ninth Circuit¹⁹. Failing to comply with the Court's order to develop an

¹⁷ *A&M Records, Inc. v. Napster, Inc.*

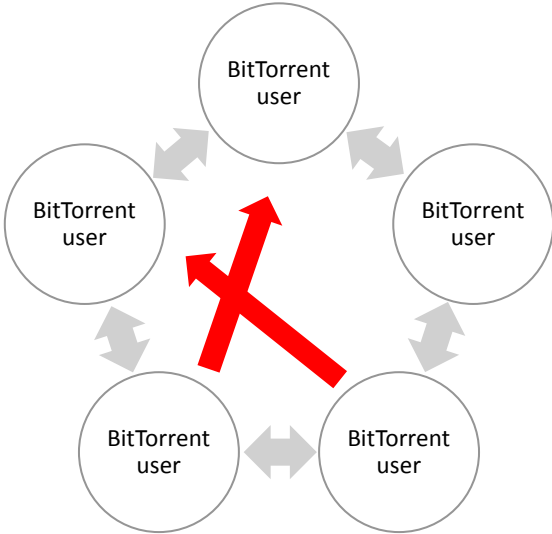
¹⁸ *A&M Records, Inc. v. Napster, Inc.*, 114 F. Supp. 2d 896 (N.D. Cal. 2000).

¹⁹ *A&M RECORDS, Inc. v. NAPSTER, INC.*, 239 F.3d 1004 (9th Cir. 2001). For a detailed analysis of the *Napster* case, see Lisa M. Zepeda, 'A&M records, Inc v. Napster, Inc.' (2002) 17(1) *Berkeley Tech. L. J.* 71-90.

algorithm which would eradicate illegal music sharing altogether,²⁰ Napster eventually shut down in 2001.²¹ The quick death of Napster did not put an end to the P2P file-sharing technology. On the contrary, a series of file-sharing services using P2P technology saw the daylight such as LimeWire, Kazaa, Madster and Scour Exchange.

Today, P2P has not disappeared. It has metamorphosed into a decentralised format where users connect their computers together without having to go through a global index, making shutting down these services harder. One of the most popular open-source protocol of P2P is BitTorrent. With BitTorrent, a user is able to prepare, request and transmit any type of computer file over the BitTorrent Network, using the protocol.

Figure 6: BitTorrent Network



2.2.4 The Apple iPod

The first generation iPod, launched in 2001, was a huge improvement on previous mp3 players. Where the first mp3 players could hold roughly 12 tracks, the first generation of iPods could store up to 5 GB worth of mp3 files (i.e. roughly 1,000 tracks). The device has subsequently been constantly improved and today these portable devices, in addition to much larger storage capacity, include numerous technical specifications improvements like a high-quality screen capable of playing videos and a powerful processor.²²

However, what really facilitated the entry of Apple in the music industry business was the launch of the iTunes Music Store in 2003. Through this, users are not only able to carry their music library around but

²⁰ Remarkably, Napster developed a technology capable of identifying 99.4% of infringing materials on its platform. Yet, this was not deemed sufficient by the court.

²¹ The brand name later re-emerged as ...

²² A series of features are now available such as: Siri personal assistant, retina display technology, voice control, Bluetooth, Wi-Fi connectivity etc.

also able to purchase single tracks or entire albums with a mouse click.²³ This helped catapult iTunes to the forefront of the music distribution business, making it the largest music distributor in the world since 2010.

2.2.5 Streaming

While the history of streaming is equally hard to pin down, it is usually described as one of the biggest revolutions in the history of music consumption. Launched in 2005, Pandora appears to be the pioneer in music streaming services. This initiative tried to revive the Music Genome Project²⁴, a sophisticated taxonomy of musical information database generated by music experts which was then fed into an algorithm to enable users to listen to music matching to the tastes of users. By the wealth of the information on the database, Pandora's search engine enables users to customise their listening experience and discover thousands of songs across the world expected to match the user's tastes.²⁵

Pandora might have become a very popular service for listeners,²⁶ however it became less popular with artists. It is easy to appreciate the concerns of artists arising from a service which enabled users across the world to access tens of thousands of works without purchasing tracks or albums. To this day, the battle over royalties paid to artists and collecting rights societies continues. Currently, right-holders earn at most cents per play.²⁷ Since 2007, Pandora experiences several royalty developments leading to licensing deals directly with music publishers such as ASCAP and BMI.²⁸

Creating a new standard for online music distribution, Pandora was followed closely by Spotify which was officially founded in 2006 in Sweden and initially launched for Mac in 2007. Despite the similar features between Pandora and Spotify, these two streaming services differ in various ways.²⁹ For example, Spotify's music catalogue is about 20 times larger than Pandora's, making Spotify 'the gold standard'

²³ It is worthwhile noting that iTunes does not use mp3 encoding but songs are encoded in Advanced Audio Coding (AAC) format, superior to mp3. As with other formats, an important issue is the compatibility of various file formats across different mobile devices.

²⁴ About the Music Genome Project, see <https://www.pandora.com/about/mgp> (last access date 17/08/16).

²⁵ Criticisms have risen towards Pandora's recommendation engine which does not always coincides with an individual's tastes.

²⁶ This technology was even described as iTunes 'biggest existential threat' in 2013, see <http://appleinsider.com/articles/13/10/28/92-of-itunes-radio-listeners-still-use-pandora-says-new-report> (last access date 17/08/16). An important limitation must be noted. This service is not available in the UK. It is only available in the US, New Zealand and Australia to comply with the requirements of the DMCA.

²⁷ Irrespective of whether pay-per-play undercompensates the artists, in terms of economic logic, the move from a share of album sales to a pay-per-play remuneration also implies a shift of risk from consumer to artist. When buying the album, the consumer took the risk that they might not enjoy the album as much as expected, whereas with pay-per-play the artists take the risk that the consumer loose interest in their music. This makes comparing the two scenarios challenging. Not only does one have to allow for the potential greater revenue from both those who listen a lot and those who listen a little, one also have to allow for the impact of the risk premium on sales.

²⁸ See section 4.3 below.

²⁹ Spotify being classified as an interactive service and Pandora as a non-interactive service (closer to radio), this has consequences on the licensing scheme applicable. See section 4.2 below.

among streaming services.³⁰ However, probably due to the sophisticated Music Genome Project, Pandora remains the reference for music discovery.

The arrival of streaming services went one step further in connecting users. We have seen how Napster and BitTorrent allowed users to connect their computers to share files. Music streaming services improved this connectivity by their social features. Both Pandora and Spotify provide their users with the ability to connect with friends, share music they like and recommend either tracks or entire playlists to other users. Nevertheless, streaming services do not provide identical social features. In this category, Spotify supersedes Pandora as it provides a real possibility for users to interact with their friends by allowing them to share music via social media websites such as Facebook, Twitter or Tumblr but also via Spotify's own messaging application. Finally, Spotify offers the possibility for users to collaborate and create playlists together. In short, Spotify made digital interactions amongst listeners a reality. Today, other streaming services have emerged such as iHeartRadio, iTunes music, Google Play, Rhapsody and other new names keep entering the market³¹.

Alongside these applications, video-sharing websites started to stream music. Founded in 2005 by PayPal employees, YouTube quickly became the world's most important online video portal. Ever since its purchase by Google in 2006, YouTube also became the world's second largest search engine, catapulting the online sharing platform to the forefront of online distribution channels. Figures from June 2015 show that YouTube, with 7% of the 135.2 billion total worldwide streams, dominates other online music streaming services. This might come as a surprise given that, despite the various improvements, YouTube remains a rather inefficient way of listening to music compared to the traditional online streaming services described above. Indeed, even though YouTube allows users to create playlists and search for content, it remains rather user unfriendly. Users must search for content on a song-by-song basis or per artist and must differentiate original content from other user-generated content present on the platform. In 2015, YouTube developed its own music app, YouTube Music. This app aims to address the criticisms by enabling users to search only for music-related results and the algorithm should boost the official artist and album pages to the top of the search results list. Therefore, users are not limited to searches on a song-by-song basis but are also allowed to search for albums, live concert footages, karaoke tracks, etc. This being said, unlike with Google Play music, users are unable to create or share playlists with other users. Playlists are generated by YouTube employees and an algorithm based on the user's history. On this front, YouTube music is behind Pandora and Spotify in terms of music discovery and recommendations to users.

³⁰ See <http://www.digitaltrends.com/music/spotify-vs-pandora/> (last access date 17/08/16).

³¹ E.g. Tidal, Deezer, Amazon Prime Music, SoundCloud and Bloom.fm.

2.3 The future of recorded music

Recorded music has changed drastically in the past hundred and twenty five years. Going from shared experience through public performance to more and more isolation with the phonograph, radio, compact disc, mp3 and apps. Whilst this tendency towards listening to recorded music as a personal experience persists, we see that at the same time a move towards experiencing music together by connecting computers together and sharing music with each other – together but separate. Simultaneously, we see a decline of tangible mediums. Today, the natural way of consuming music is accessing music through streaming services as opposed to purchasing a physical good (record, tape or CD) that users can own and play when they want to listen to music.³² With this decline of the physical mediums, we experience an increase of ticket sales for live performances.³³

The last 25 years dramatically changed the recorded music industry and the development in the recent past makes any prediction about future developments challenging.³⁴ However, it seems that algorithms are here to stay. Currently, users must still search for content. While recommendations are already here, listening to music via streaming services seems to remain harder than listening to radio where listeners can simply consume musical works. Some have suggested that the future lies in using procedural generation³⁵ whereby a complex algorithm generates playlists based on parameters rather than through manual creation. By relying on information from Facebook, Twitter, personal music library, music where users turned up the volume, the user's activity etc. these algorithms can create highly complex playlists targeted to the user's tastes and context without any human input.

Spotify has been working on a related idea. In 2014, the music streaming service discussed the idea of tailoring music content to the user's tastes by relying on the user's heart rate, motion, temperature, and sleep patterns.³⁶ Besides recommendation services, the record industry is looking into developing more digital virtual interaction by strengthening their relationships with music start-ups. For example, the 2015

³² A possible counter to this is a new way of bundling material about the artist(s). This is clearly expressed by John Harris: "There's a new Pink Floyd record out, as they used to say in the 1970s. Only it's not a record, a CD, or anything resembling the modest recorded artefacts with which that group made their name, but rather a 27-disc cornucopia, containing more than 26 hours of music, 42 "items of memorabilia", five reproduction vinyl singles and three feature films." He continues: "Welcome to the 21st-century music business, or what remains of it. As everyone knows, downloads and streaming have just about killed off all the industry's orthodox business models. So now, via endless reissues and "luxury" packages, it is squeezing every last drop from its assets ...", "Pop music was a great leveller. Now it's a bespoke plaything for the rich", John Harris, *Guardian* 16/11/2016, page 35.

³³ S. Witt, *How Music Got Free: what Happens When an Entire Generation Commits the Same Crime?* (Random House, 2016) p. 260.

³⁴ Some argue that music streaming is the final destination of the music business, see Sony Music chief executive Edgar Berger's statement over the 2015 IFPI Digital Music report: <http://www.bbc.co.uk/news/entertainment-arts-32315974> (last access date 17/08/16).

³⁵ This is so far used in the gaming industry, see <http://www.makeuseof.com/tag/procedural-generation-took-gaming-industry/> (last access date 17/08/16). See also, D. Kusek and G. Leonhard, *The future of music: Manifesto for the digital music revolution* (Berklee Press, 2005), pp. 171-173.

³⁶ See The Guardian's article: <https://www.theguardian.com/technology/2014/jan/20/spotify-sensors-heart-rate-mood-playlists-motion-tracking> (last access date 17/08/16).

IFPI Digital Music Report noted the interest of the music record industry in the technology developed by Oculus VR.³⁷ Universal Music worked with Oculus and Samsung to produce virtual reality experiences involving artists. By wearing the Oculus Rift headset, a user can wander in a virtual world themed around his favourite artists, enabling the user to meet the artist, listen to their music and penetrate their universe. Similarly, YouTube has launched its new 360° Hub comprising virtual reality videos in 2016. By downloading the YouTube app on Android or iPhone devices, users can find videos singled out with a cardboard avatar. Users can then place their phone into a virtual reality headset for full experience.³⁸ While Deborah Hyacinth, vice president of Universal Music Group sees this technology as the next revolution in the music industry, the jury is still out as to whether listeners will buy into this new technology or whether – a bit like the return in fashion of big headphones like Beats by Dre – we will experience a return to more traditional ways of listening to music.

Figure 7: Oculus Rift headset



Source: <https://tctechcrunch2011.files.wordpress.com/2015/06/oculus-rift-consumer-edition.png?w=738>

3. The legal aspects

Intellectual property rights, and especially copyright, underpins the economic framework used in the music industry. By conferring a bundle³⁹ rights to right-holders, creators can license their works in the UK and around the world, generating revenue to incentivise the investment in creating new creative content.⁴⁰ Digitalisation and the growth of the Internet has (and will) fundamentally transformed the way we access and listen to music but it also required (and will) the music sector to constantly reinvent itself to capture

³⁷ IFPI, *Digital Music Report* (2015), p. 32 available at <http://www.ifpi.org/downloads/Digital-Music-Report-2015.pdf> (last access date 17/08/16).

³⁸ Lory Gill, the best 360 degree and VR videos on YouTube (Wareable, 15th July 2016) available at <http://www.wareable.com/vr/the-best-360-degree-vr-videos-on-youtube> (last access date: 20/12/2016).

³⁹ Craig vigorously criticises this reasoning of the court, reminding us that the recognition that copyright is intangible property is fundamental to understanding the copyright paradigm, but, the reasoning of the court appears to be heavily focussing on the assumption that copyright should be considered as any other form of private property; e.g. the act of buying a book does not give property over the expression exercised by the author of the book. CJ. Craig, *Copyright, Communication and Culture: Towards a Relational Theory of Copyright Law* (Edward Elgar, 2011), pp. 212-222.

⁴⁰ As explained by Kretschmer and al, initially collecting rights societies were created to control public performances of musical works. Kretschmer, George Michael Klimis and Roger Wallis, 'The changing location of intellectual property rights in music: a study of music publishers, collecting societies and media conglomerates' (1999) 17 *Prometheus: Critical Studies in Innovation*, p. 269.

revenues from the emerging services and platforms but also to shield copyright-protected works from copyright infringement. Given the central role of copyright in the music industry, this section will give an overview of key copyright principles applicable in the UK.

3.1 Copyright recap

In the UK, the copyright regime is governed by the Copyright, Designs and Patents Act 1988⁴¹, as well as EU directives⁴² and international treaties⁴³. This automatic protection covers both published and unpublished works. However, in UK copyright law, the creation must be fixed on a material medium.⁴⁴ The complexity of music copyright lies in the multi-layering of rights embodied in a single track and correspondingly, possible multiple right-holders and licensees. As a track can be comprised of three separate copyrights – music, lyrics and sound recording – we will first analyse the authorial works embodied in a song before turning to the specificities of sound recordings.

If a person writes a song (the composition), copyright can subsist in the lyrics (literary work) and the music (musical work) provided that these works are original⁴⁵, in addition to existing in any material form.⁴⁶ The first copyright owners of this composition are generally its creators.⁴⁷ Right-holders can enjoy their prerogatives for 70 years after the death of the creator or 70 years after the last surviving creator if for example, the lyrics have written by several individuals.⁴⁸ But a song which has been recorded can also attract a separate copyright protection, referred to as an ‘entrepreneurial work’ in UK legislation.⁴⁹ As opposed to copyright duration for authorial works, copyright in sound recordings extinguishes 70 years

⁴¹ 1988 c. 48.

⁴² Directive 2014/26/EU of the European Parliament and of the Council of 26 February 2014 on collective management of copyright and related rights and multi-territorial licensing of rights in musical works for online use in the internal market, *Official Journal L 84*, 20.3.2014, pp. 72–98; Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market (‘Directive on electronic commerce’), *Official Journal L 178*, 17.7.2000, pp. 1–16; Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society, *Official Journal L 167*, 22/06/2001 pp. 10 – 19.

⁴³ Mainly, the Berne convention for the Protection of Literary and Artistic Works 1886 (as amended on September 28, 1979); Rome Convention 1961; Agreement on Trade-Related Aspects of Intellectual Property Rights 1994; WIPO Copyright Treaty 1996; and, WIPO Performances and Phonograms Treaty 1996.

⁴⁴ For authorial works: section 3 (2) CDPA 1988; and, for sound recordings: section 5A (1) CDPA 1988.

⁴⁵ Originality has traditionally be interpreted by UK case law as requiring ‘labour, skill and judgement’ which later gave rise to controversy given the court of Justice of the European Union’s interpretation of ‘originality’ as requiring the work to be that of the ‘author’s own intellectual creation’. For more on the originality threshold, see L. Bently and B. Sherman, *Intellectual Property Law* (OUP, 2014) pp. 93-117.

⁴⁶ Section 3 CDPA 1988.

⁴⁷ Section 9 (1) CDPA 1988. There are exceptions to this rule, for example see section 11 CDPA 1988 (creations made in the course of employment).

⁴⁸ Section 12 (2) & (8) CDPA 1988.

⁴⁹ Also called ‘neighbouring right’ or ‘related right’. Sound recording is to be interpreted in the broad sense, covering vinyl record, tapes, CDs, mp3 and other digital file formats.

from the end of the calendar year in which the sound recording was made, published or made available if one of these events occur within 50 years.⁵⁰ Here, the first copyright holder is the record producer.⁵¹

It is important to note that the person who owns the physical product (e.g. CD, mp3 or other digital file) does not own the copyrights embodied within it. Therefore, users who purchase a CD lawfully are not entitled to copy its content if they do not own the copyrights in the song. But technology allows user to easily copy works (whether it is to burn a CD or copy a digital file). This constitutes a violation of the right-holders' copyrights.⁵² Indeed, once copyright subsists in a work, its right-holder is granted a bundle of exclusive⁵³ rights. First, the right-holder is provided with a set of economic rights⁵⁴ which enables him/her to copy the work, make adaptations of this one, issue copies of the work to the public, perform the work in public and broadcast or send cable transmission of the work (which have been extended to cover digital transmission). Secondly, moral rights are available to authors.⁵⁵ Essentially in the UK, these include the paternity right⁵⁶ (and the right not to have a work falsely attributed to anybody else but its author)⁵⁷ and the integrity right⁵⁸. Unlike economic rights, these moral rights must be asserted⁵⁹ and cannot be assigned. However, these can be waived⁶⁰ and are transferrable upon death.

Finally, we must mention performers' rights. While these rights were initially reserved for public performances only,⁶¹ the EC Rental Directive⁶² extended the protection to anyone involved in a recording - including both featured and session musicians - when licensed for broadcast purposes.⁶³ In the first place, the beneficiaries of performers' rights is the performer of a particular musical performance. The rights can appear similar to the ones granted to right-holders of authorial works but they remain somewhat different. As such, performers have also a reproduction right, distribution right, rental and lending right, making available to the public right but they also have the right to equitable remuneration.⁶⁴ These rights last for

⁵⁰ Section 13A (2) CDPA 1988.

⁵¹ Section 9 (2) (aa) CDPA 1988.

⁵² For more, see section 3.3 below.

⁵³ Exclusivity is an important concept in copyright law which means that no one else than the right-holder is allowed to carry out one of the restricted acts set out in section 16 CDPA 1988 without prior authorisation.

⁵⁴ Section 16 CDPA 1988.

⁵⁵ For more on moral rights, see L. Bently and B. Sherman, *Intellectual Property Law* (OUP, 2014) pp. 272-291.

⁵⁶ Section 77 CDPA 1988.

⁵⁷ Section 84 CDPA 1988.

⁵⁸ Section 80 CDPA 1988.

⁵⁹ Section 78 CDPA 1988.

⁶⁰ Section 87 (2) DPA 1988.

⁶¹ In other words, the protection of the musical performance. See section 180 (2) CDPA 1988.

⁶² Directive 2006/115/EC of the European Parliament and of the Council of 12 December 2006 on rental right and lending right and on certain rights related to copyright in the field of intellectual property (codified version) *Official Journal L 376*, 27.12.2006, pp. 28-35.

⁶³ This extension of rights complicate the production of recorded music because what had previously simply been an input into the process which was paid, it is now potentially entitled to a stream of income, thereby adding considerable transactions costs to the organisation of the production of recorded music. This would seem to benefit the established intermediaries.

⁶⁴ For performers' rights, see sections 182 - 182D CDPA 1988.

70 years from the year when the recording is published or communicated if this occurs within 50 years since it was made.⁶⁵ Performers also enjoy moral rights as described here above.⁶⁶

This brief description of the key copyright concepts is potentially misleading as it focuses on the UK copyright paradigm only. The previous section demonstrated that the evolution of music consumption strives towards more internationalisation. Therefore, it is important to take into consideration the domestic idiosyncrasies when analysing the UK music market but we also need to take into account its international dimension and other countries' variations which are especially relevant when dealing with assignment and licensing of copyright.⁶⁷

3.2 Assignment and licensing of copyright

To ensure remuneration and to make their works known by the public, most right-holders of authorial and entrepreneurial works assign (by selling) or license (authorise) their copyrights to third parties. Adding a layer of complexity, a right-holder can decide to share these exclusive rights between several third parties.⁶⁸ However in practice, these are often licensed collectively to specific bodies.

In the UK, right-holders of the composition, usually assign their performance and broadcasting rights to Performing Right Society (PRS) for Music which administers the licenses of the works' performances.⁶⁹

In order to develop a record, the first copyright owner can assign the right to record the work, known as the mechanical right.⁷⁰ The right-holders of the musical works traditionally mandate the Mechanical Copyright Protection Society (MCPS) also handled by PRS for Music⁷¹ to administer these rights to reproduction.⁷² Hence, whoever wants to record music must seek prior authorisation from MCPS. The royalties are then, redistributed to the copyright owners. As mentioned earlier, the rights in the sound recording are initially granted to the producer. In the UK, records companies employing these producers

⁶⁵ Section 191 CDPA 1988. The duration for performers' rights was extended following the implementation of the EU Directive 2011/77/EU which came into effect in UK copyright law on the 1st of November 2013, see Directive 2011/77/EU of the European Parliament and of the Council of 27 September 2011 amending Directive 2006/116/EC on the term of protection of copyright and certain related rights *Official Journal* L 265, 11.10.2011, pp. 1–5.

⁶⁶ See sections 205J (2), 205L and 205M CDPA 1988.

⁶⁷ Therefore, in addition to the international treaties mentioned in footnote n. 43 above, the US, French, German and Japan legal frameworks seem to be of particular importance for this creative industry because it adds to the complications of doing business and hence to transaction costs of different players.

⁶⁸ Section 90 CDPA 1988.

⁶⁹ As the owner of copyrights, PRS for Music can also either exercise the rights in the work itself or transfer these to a third party such as a publisher or other collecting society. Once a member of PRS for Music, the original copyright holder assigns the copyright subsisting in the current work together with the copyrights in future works.

⁷⁰ Generally, publishers. Publishers can also become members of the Music Publishers Association (MPA) to protect their interests.

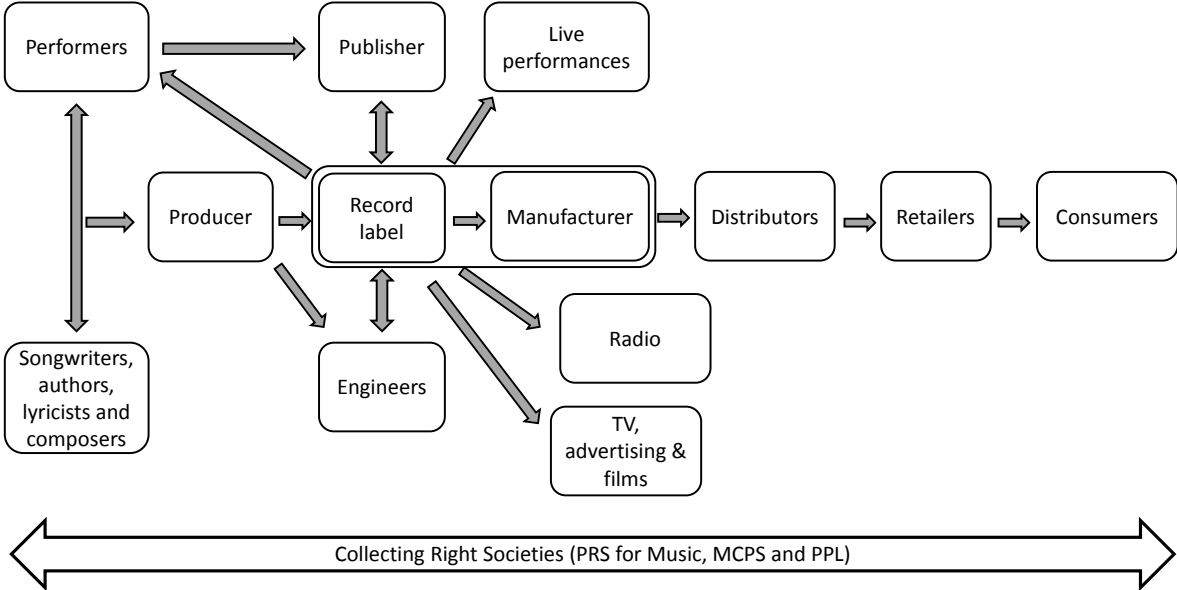
⁷¹ MCPS represents composers and UK music publishers and collecting societies overseas linked by reciprocal agreements.

⁷² As such, members do not actually assign their rights to MCPS but MCPS acts as exclusive agent for its members. These members are right-holders who include therefore lyricists, songwriters, composers and authors. They can also become members of the British Association for Songwriters, Composers and Authors (BASCA) which aims to defend their interests.

usually assign the exclusive rights to Phonographic Performance Limited (PPL) to, for example, broadcast (which includes Internet transmission) the works or to authorise somebody else to make another recording including the original record (also known as synchronisation rights).⁷³

As noted by Greenfield and Osborn, exclusivity is key in the music industry.⁷⁴ These authors explain how music industry players, illustrated in figure 7 below, try to acquire exclusive control over creators and their outputs for at least as long as they are successful.⁷⁵ Consequently, contract law also plays a crucial role and contracts' terms need to be carefully negotiated.⁷⁶

Figure 7: Basic music industry value chain pre-digitalisation



Several sources of income result from this structure. Firstly, performance rights for composers and publishers can generate between 5-8% of box office receipts through agreements between PRS for Music, broadcasters and venues. Secondly, composers and publishers also receive monies from the exploitation

⁷³ It is worth noting that PRS for Music and PPL created a joint venture. Starting in 2017, these two bodies will start to license public performance licences jointly to customers. See PRS for Music's press release: <http://www.prsformusic.com/aboutus/press/latestpressreleases/pages/prs-for-music-and-ppl-confirm-plan-to-create-new-joint-venture-for-public-performance-licensing.aspx> (last access date 19/08/16).

⁷⁴ S. Greenfield and G. Osborn, 'Copyright law and power in the music industry' in S. Firth and L. Marshall (eds), *Music and copyright* (Edinburgh University Press, 2004), p. 96.

⁷⁵ In standard contracts, musicians exclusively license all exploitation of rights throughout the world during copyright protection to a label to ensure that all present and future performances can be recorded.

⁷⁶ These can take different forms: licence, exclusive long term recording contract, development deals, production deals and the most recent 360° model. A. Harrison, *Music: the business* (6th ed., Random House, 2014) pp. 73-89; M. Kretschmer, G.M. Klimis and R. Wallis, 'The Changing Location of Intellectual Property Rights in Music: A Study of Music Publishers, Collecting Societies and Media Conglomerates' (1999) 17 *Prometheus: Critical Studies in Innovation*, p. 178; P.B. Hugenholz, 'Adapting copyright to the information superhighway' in *The Future of Copyright in a Digital Environment* (Kluwer Law International, 1996), p. 84.

of mechanical rights. Here, the income is generally between 8-9% of the wholesale price of the recording as collected by MCPS.⁷⁷

In the changing technological and digital landscape, income is still generated. However, the ways in which the music industry generates revenues is adjusted. First of all, there is an increase of ‘standard terms’, meaning that one party (e.g. the publisher or record company) imposes terms on the other party (e.g. the artist) who must either accept or refuse the standard terms.⁷⁸ This facilitates intermediaries to protect their interests in the music industry value chain.⁷⁹ Secondly, some costs have been reduced with digitalisation. As discussed in the next section, the risk for a record company of being left with unsold stock is reduced as they can manufacture fewer physical records (e.g. CDs) without adverse effects on unit costs.

Overall, we note that the traditional copyright paradigm relies on intermediaries to control and distribute the physical content comprising the creative content. Yet, in the digital era, the need for intermediaries is being questioned. Indeed, while copyright legislation should still ensure that creators receive adequate remuneration for their creative endeavours, it is today criticised for being outdated as artists struggle to derive royalties from P2P or streaming services.

3.3 Infringement of copyright

With digitalisation and globalisation, one of the biggest struggles for the music industry is fighting copyright infringement.⁸⁰ As explained in subsection 2.2.3 above in relation to BitTorrent, the control of musical works raises several concerns because it became harder to follow what is happening to works once communicated in the digital world.⁸¹ As technology and in particular software develops in the future, this may become less of a problem. However, there is also a concern that the terms of use for the consumer become overly complex and either ignored or used strategically as a source for confusion to limit competition further.

In this context, record companies and collecting societies have (and still are) battling for stronger anti-piracy laws. While these were strengthened in the last years, domestic anti-piracy legislation is still deemed inefficient by part of the industry. In doing so, record labels and other intermediaries generally shield

⁷⁷ More on this in section 4.2 below.

⁷⁸ L. Guibault, *Copyright and contracts: An analysis of the contractual overridability of limitations on copyright* (Kluwer, 2002), p. 205. Guibault contrasts this standard model with the classic contract model whereby both parties have equal bargaining powers and are reasonably aware of their rights and obligations.

⁷⁹ R. Wallis, ‘Copyright and the composer’ in S. Firth and L. Marshall (eds), *Music and Copyright* (Edinburgh University Press, 2004), p. 110.

⁸⁰ See A. Harrison, *Music: the business* (Virgin Books, 6th ed., 2014) pp. 184-188.

⁸¹ R. Wallis, ‘Copyright and the composer’ in S. Firth and L. Marshall (eds), *Music and Copyright* (Edinburgh University Press, 2004), p. 110; P.B. Hugenholtz, ‘Adapting copyright to the information superhighway’ in *The Future of Copyright in a Digital Environment* (Kluwer Law International, 1996), p. 94.

behind the artists' interests in order to lobby the government to pass stringent anti-piracy laws. However, as explained by Bacache-Beauvallet et al.,⁸² the interests of artists and record labels are not necessarily aligned. Importantly, the artist's attitude towards online music piracy depends heavily on a number of factors, including current popularity and the type of revenue received. Bacache-Beauvallet et al. found that artists who enter into a contractual relationship with a record company but who are also doing a lot of live music performances tend to tolerate more piracy. Whereas, artists who are self-released for example gain relatively more from the sale of recorded music and hence tend to be less accommodating of piracy. As record companies do not derive revenue from live performances, they generally demand stronger copyright legislation. Paradoxically, in their model artists who are not signed up with a record label are the ones who appear to have interests which are more in line with the interests of record companies. This is not a general result. Duchêne and Waelbroeck find that increasing legal protection benefits artists whose music is well-known to consumers, but can hurt small-audience artists where copying allows consumers to discover their music.⁸³ Most of the literature cited in these two papers support the idea that "star performers" and record companies have the better aligned incentives when it comes to lobbying for strong protection against piracy.

While online copyright infringement remains an important issue,⁸⁴ positive changes in consumer behaviour is happening.⁸⁵ This might be explained by the three-pronged attack of legislation, litigation and education⁸⁶ adopted by organisations representing record labels (e.g. BPI/IFPI).

3.4 Conclusion

Following the utilitarian justification of copyright, copyright legislation establishes a system to promote creation and dissemination of works against financial reward. Traditionally, this system has mostly benefited the intermediaries through the transfer (or license) of the exclusive rights from composition creators to organisations administering these rights on their behalf against a percentage. Similarly to

⁸² Bacache-Beauvallet, M. Bourreau and F. Moreau, 'Piracy and creation: the case of the music industry' (2015) 39(2) *European Journal of Law and Economics*, pp. 245-262 and papers cited therein.

⁸³ A. Duchêne and P. Waelbroeck, "The legal and technological battle in the music industry: Information-push versus information-pull technologies". 26 *International Review of Law and Economics* 565-580, 2006.

⁸⁴ . Harrison, *Music: the business* (Virgin Books, 6th ed., 2014) p. 193.

⁸⁵ E.g. the IPO used a tracker to look at what people in the UK do online. The early results show that piracy is stabilising and even beginning to fall. See R. Eveleigh, Online behaviours: tracking the numbers (IPO, 25 August 2016) available at: <https://ipo.blog.gov.uk/2016/08/25/online-behaviours-tracking-the-numbers/> (last access date 25/08/2016). The literature is reviewed systematically in Watson SJ, Zizzo DJ, Fleming P (2015) Determinants of Unlawful File Sharing: A Scoping Review. *PLoS ONE* 10(6).

⁸⁶ On education see also, I. Hargreaves, 'Digital opportunity: a review of intellectual property and growth' (2011) available at: <http://webarchive.nationalarchives.gov.uk/20140603093549/http://www.ipo.gov.uk/ipreview-finalreport.pdf> (last access date: 25/08/2016). This led to the launch of 'Copyright User' which constitutes an online resource on UK copyright law aimed at creators, entrepreneurs, students and the wider public. See www.copyrightuser.org. (Last access date: 25/08/2016).

composition creators, creators of sound recordings are also granted exclusive rights which they can in turn transfer or license to record labels which will administer these rights on their behalf.

This paradigm is altered in the 21st century. The advent of technologies, with the rise of online music distribution, disrupted the music ecosystem to the extent that commentators question the current copyright system and its adequateness to provide incentives given the difficulty of rights administration and enforcement of copyright in the digital world.⁸⁷ Digitalisation and disintermediation, making it possible to side-line publishers, may also have exacerbated the differences between different groups of artists. This is particularly apparent in the attitudes to free downloads and even piracy. Digitalisation also has the capacity to alter the size and nature of transactions costs. The same is true of copyright laws. Since organisational structures as well as industry structures to a significant extent are driven by the saving of transaction costs [e.g. the *raison d'être* for the collecting societies], the interplay between digitalisation and copyright may be important. In the light of that, questioning the appropriateness of current copyright laws may be warranted.

4. The Market structure

In this current context of technological changes and increasing reliance on copyright legislation by industry players, the question remains as to how these changes affect the music industry at large, especially intermediaries, between creators and consumers. Do creators still rely as much as before on collecting rights societies, publishers and record labels given that technology decreased production costs and that creators are able to directly sell music to consumers online?

4.1 The UK music industry in the pre-online music distribution era

Solo⁸⁸ describes the traditional music market structure as one in which a great number of creators were ready to transfer or license their rights to intermediaries – concentrated in few major record labels⁸⁹ - while simultaneously, a great number of consumers were ready to purchase the end-products.⁹⁰ Given this market structure, record labels were able to occupy the centre stage by becoming essential intermediaries in the

⁸⁷ M. Bacache-Beauvallet, M. Bourreau and F. Moreau, Piracy and creation: the case of the music industry' (2015) 39(2) *European Journal of Law and Economics*, pp. 245-262.

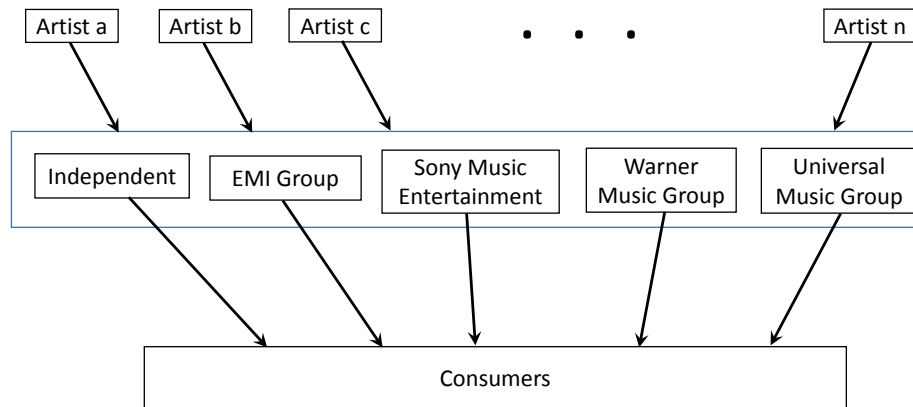
⁸⁸ A. Solo, 'The Role of Copyright in an Age of Online Music Distribution' (2014) 19 *Media and Arts Law Review*, p. 171.

⁸⁹ From 2004 when Sony and BMG merged, there were four top record labels in the UK. These were EMI Group, Sony Music Entertainment, Warner Music Group and Universal Music Group. In 2012, EMI and Universal Music Group merged leaving the market with only three major labels.

⁹⁰ Solo (A. Solo, 'The Role of Copyright in an Age of Online Music Distribution' (2014) 19 *Media and Arts Law Review*,) to this as "an oligonomy", a little used term in industrial economics and a term which simply describes a situation where there are many suppliers, many consumers but only handful of intermediaries. Put differently, one in which part of the value chain is concentrated. Such a structure is not uncommon and would for many product lines and many countries describe the market for groceries.

music industry value chain.⁹¹ Responsible for recording music, manufacturing CDs, distributing works and the promotion of recordings, record labels became an indispensable channel for artists and producers to reach consumers. The structure is illustrated in figure 8 below:

Figure 8: Market Structure in the Record Industry⁹²



In the previous section, we established that the copyright paradigm is the centre-piece of the music industry. It establishes a system which aims at fostering creation and dissemination of the new works created by providing right-holders with exclusive rights to control and exploit the copyright-protected works. In so doing, the role of copyright constitutes the bargaining chip for record labels. By transferring their exclusive rights to intermediaries, artists are entitled to royalties which aims at promoting the creation of new works.

To understand the impact of digitalisation on the music industry and the market structure, it is essential to understand how royalties were calculated in the pre-digital era. Monies to which an artist is entitled from record labels forms a percentage of the wholesale price to dealers. Therefore, these royalties derive from the reproduction and distribution of the sound recording (i.e. the entrepreneurial work). In the UK, it is calculated by taking the CD wholesale price multiplied by the royalty rate (which is traditionally specified in the contract between the artist and the record label). However, this simplified calculation does not take into consideration the packaging deduction and the reserve. The packaging deduction consists of a percentage which ought to be deducted from the CD wholesale price and which usually amounts to 25%. In theory, this deduction enables the record labels to recoup their investment in the packaging of the physical medium.⁹³ The philosophy underpinning this deduction is that the artist should only be entitled

⁹¹ In this vision, the record label is the nexus of a series of contracts necessary to produce the recorded music and as such is the residual claimant.

⁹² Loosely adapted from Bishop's figure of the oligonomy market structure in the US record industry, see Jack Bishop, 'Building International Empires of Sound: Concentrations of Power and Property in the "Global" Music Market' (2005) 28 *Popular Music and Society* 443–471.

⁹³ It is worth emphasising that this packaging deduction does not apply to the digital music distribution.

to royalties deriving from the sales of the record. Allowing for some costs to be accounted for has the effect of moving the remuneration for the artist from a pure revenue share to a partial profit share. This is being criticised as an artificial way to further reduce the income which ought to be passed on to the artist.⁹⁴ Additionally, to understand the amount passed on to the content creators, we need to take into consideration the 'reserves'. In the pre-digital world, recording and manufacturing a CD were costly, with a significant part sunk costs. Therefore, record labels generally kept part of the income to which the artist is entitled to until they knew how well a CD was doing at retail level.⁹⁵ In isolation, this implies a degree of risk sharing between artist and record label. Taken together with the cost sharing, this has the effect of making the artist more of a residual claimant alongside the record label, with similar incentives, but without any decision-making powers which often accompany such partnerships. If the artist is already taking some of the risk and paying for some of the costs, it may appear a small step to resume full responsibility.

Besides the exclusive rights deriving from the copyright protection granted for the sound recording, we need to take into consideration the right-holders in the composition (i.e. the musical work and literary work). As explained in section 3.2, there is a distinction between performance licences (which ought to be obtained for any live or broadcast performances) from PRS for Music and mechanical licences (for the distribution or reproduction of these authorial works) from MCPS.

4.2 The music industry in the online music distribution era

The rise of online music distribution disrupted this ecosystem and especially, the role of record labels. In a world where consumers relied heavily on tangible mediums to access music, record labels constituted important capital-providing intermediaries.⁹⁶ This essential role is being questioned in the online environment given the significant reduction of the upfront costs for bringing music onto the market.⁹⁷ In 2015, the IFPI Digital Music Report noted that major record labels might not be an essential intermediary as the new online music models account for 46% of the share of industry revenues (bringing these on equal footing with the share of physical works) while performance and synchronisation rights account for 8%.⁹⁸

⁹⁴ D. S. Passman, *All you need to know about the music business* (Penguin books, 2011) Chapter 7, p. 77.

⁹⁵ It is worth reminding that CD are sold on a 100% return basis. Therefore before actual sales, the record labels take a bet on how well a CD will sell. This explains why the reserve varies depending on the CD and the artist. However, Passman reports that the reserve usually fluctuates between 20-30% or 5-15% for more established artists. D. S. Passman, *All you need to know about the music business* (Penguin books, 2011) Chapter 7, pp. 63-82.

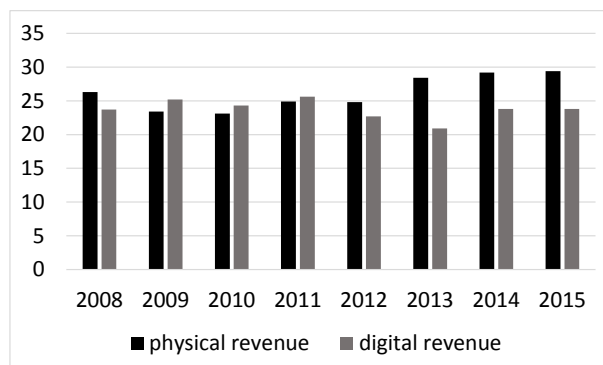
⁹⁶ D. S. Passman, *All you need to know about the music business* (Penguin books, 2011) Chapter 7, pp. 63-82.

⁹⁷ Some commentators referred to the music industry being the first creative industry experiencing disintermediation following digitalisation. See M. Cooper, 'Structured Viral Communications: The Political Economy and Social Organisation of Digital Disintermediation' (2011) 9 *The Journal on Telecommunications and High Technology Law*, pp. 22-37; J. Waldfogel, 'And the bands played on: digital disintermediation and the quality of new recorded music' (2012) available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2117372 (last access date 22/08/16).

⁹⁸ IFPI, *Digital Music Report* (2015), p. 6 available at <http://www.ifpi.org/downloads/Digital-Music-Report-2015.pdf> (last access date 24/08/16).

The market shares for physical and digital music over the period 2008-2015 is fairly stable, apart from the merger between EMI and Universal Media Group, which reduced the set of major labels to three. The market share of the independents over that period is summarised in figure 9 below:

Figure 9: Market share of independent labels 2008-2015



Source: Music and Copyright blog, available at <https://musicandcopyright.wordpress.com/>.

One trend is worth noting: relatively speaking, independents have a larger share of the physical market. However, as the value of that segment has decreased over time, this may simply reflect that the large labels are less focused on that segment. Generally, the digital segment is more concentrated. If one uses the numbers equivalent from the Herfindahl measure of concentration,⁹⁹ it is as if there is somewhere between 5 and 6 equal sized firms in the physical segment while there are only between 4 and 5 in the digital segment. The record label segment is hence, fairly concentrated. Allegations made by the Independent Music Publishers and Labels Association (IMPALA) in their request for a review of the Sony – BMG merger decision by the European Commission suggests that the segment may behave even less competitively,¹⁰⁰ a theory rejected by the European Commission following extensive analysis.¹⁰¹ This level of concentration may imply that less is passed on from record labels to artists, increasing the incentive for the artists to take full control of the recordings.

The advent of technologies and the Internet provided artists with ways to record their own music, to distribute and promote it without necessarily signing a recording contract with a record label. To

⁹⁹ The most commonly used measure of concentration is the Herfindahl index (sometimes referred to as the Hirschman-Herfindahl index) which is the sum of the squared market share of all firms in an industry – in this case we only have data for the three largest and we approximate the market share of the rest by assuming that there are n equal sized firms with a market share of 1%, where n is determined by the total market share having to sum to 100%. The Herfindahl index when there are N equal sized firms is N times their squared market share which is $(1/N)^2$ for each firm. Hence the index, H , is $H = 1/N$ and $1/H = N$.

¹⁰⁰ Case T-464/04, *Independent Music Publishers and Labels Association v. Commission*, [2006] ECR II-2289. The Commission had initially in its statement of objections raised the concern that the merger might create or strengthen a collective dominant position, what economists would refer to as tacit collusion. The main argument raised by IMPALA (see recital 32) was that the Commission had failed to justify its departure from this position.

¹⁰¹ Félix E. Mezzanotte, 'Direct versus Indirect Proof of the Airtours Criterion in Impala' (2008) 31 *World Competition*, Issue 4, pp. 523–540

understand the evolution of the music industry and the emergence of new online business models, we will in turn consider download-based models (linked to P2P technology) and streaming-based models.

Both the labels and self-recording artists need to retail the music whether it is in the form of a physical product or a digital file for downloading or streaming. While some brick & mortar stores remain, in particular, the chain store HMV, the number of independent stores has been much reduced and they have become niche outlets. Overall brick & mortar retail accounts for about a third of the sales revenues in the UK. The main channels for retail distribution are either on-line retailers or streaming services. BPI statistics¹⁰² firstly shows that for the UK, streaming outstripped sales of digital singles (downloads) for the first time in 2014. This was both due to a steep growth in streaming and partly to the sales of digital singles levelling off. At the same time the sale of physical albums and singles continued its sharp decline. This, in itself, points to a shift away from brick and mortar stores. However, if one looks at sales by major retailers for 2015, Amazon (27.0%) and Apple (26.7%) between them have more than half the music retail market in the UK, the one remaining specialist chain-store¹⁰³, HMV had 15.4%, the major supermarkets 17.0% and remaining outlets had 13.9%. The Herfindahl measure of concentration at the retail level is around 0.18, increased slightly by about 3.5% from 2014. The level of concentration corresponds to having an industry with between 5 and 6 retailers of similar size. As the data look across retailers with very different profiles, this has clearly become a concentrated part of the market.

Central download-based models remain popular, accounting for 52% of the global digital revenues in 2014.¹⁰⁴ Yet their popularity seems to be rapidly declining.¹⁰⁵ Following the Napster saga, major record labels launched their own online music store.¹⁰⁶ While these services struggled to take off, the need for mainstream digital audio download led to the launch of iTunes Store, which linked to the iPod technology led to the growth of the music download market as users could download music directly onto their portable devices. Very quickly, other services saw daylight. For example, artists developed their own online music stores by directly embedding digital distribution widgets onto their website to sell their music directly to consumers.¹⁰⁷ These direct-to-fans (D2F) platforms consist of a business model which inherently gets rid

¹⁰² Reported in blogpost “Amazon overtook Apple as UK’s biggest music retailer last year” on Music Business Worldwide on 16 July 2015, see <http://www.musicbusinessworldwide.com/amazon-sold-more-music-than-apple-in-the-uk-last-year/>.

¹⁰³ This chain-store was bought out of administration in 2013. It has more recently moved to include on-line sales of vinyl and CD/DVDs.

¹⁰⁴ IFPI, *Digital Music Report* (2015), p. 7 available at <http://www.ifpi.org/downloads/Digital-Music-Report-2015.pdf> (last access date 24/08/16).

¹⁰⁵ 8% decline in 2014 in favour of streaming. IFPI, *Digital Music Report* (2015), p. 8 available at <http://www.ifpi.org/downloads/Digital-Music-Report-2015.pdf> (last access date 24/08/16).

¹⁰⁶ E.g. Sony Music Entertainment and Universal Music Group teamed up to launch ‘Pressplay’; EMI, AOL/Time Warner and Bertelsmann Music Group teamed up to launch ‘MusicNet’. These services did not do so well given the limitations attached to what users’ could do once they purchased the music. Therefore, illegal free downloading services remained very popular. These early services led to the creation of iTunes and Amazon’s mp3 services.

¹⁰⁷ E.g. Bandbox, Bandcamp, Nimbit, Bandzoogle, Cash Music, MySpace, fm, Pledgemusic, ReverbNation, soundcloud, Songcast, Tunecore, Wazala and Topspin.

of the middle man by allowing artists to deliver music directly to fans, in the hope of allowing them to keep a higher percentage of their sales. In this regard, iTunes and Amazon take a 30% cut on the revenue to which the artist is entitled to.

In streaming-based models, we need to distinguish between interactive (or on-demand) services like Spotify and non-interactive services such as Pandora¹⁰⁸, iHeartRadio and Sirius. The difference lies in the fact that interactive online streaming services allow the users to choose the tracks which are played as opposed to non-interactive platforms where users do not control the songs played next (mimicking radio broadcast).¹⁰⁹ This distinction has consequences on the services' revenue models. Indeed, non-interactive platforms are slightly privileged as these benefit from compulsory licenses. Peculiar to the US copyright system,¹¹⁰ a compulsory license means that right-holder must grant a license to these digital radios. Once the non-interactive service qualifies for the compulsory license, then it needs to pay a statutory license fee¹¹¹ to SoundExchange¹¹². This non-profit organisation includes artists' representatives and record labels and collects and distributes royalties deriving from the performance of the mater records. In this system, 45% of royalties are paid directly to featured artists on the recording, 5% are paid to a fund for non-featured artists¹¹³ and the remaining 50% are paid to the right-holders of the recording (i.e. usually the record label). These services historically relied on advertising to generate revenue and slowly, introduced subscription models.

On the other hand, interactive (on-demand) are subject to voluntary licenses.¹¹⁴ Therefore, the streaming service must enter negotiations with the record label in order to be able to transmit the sound recording onto its platform. This shift bargaining power towards the record labels and may enable them to charge the use a higher rate. This is usually the case and this explains why it is crucial for these streaming services to convert as many users as possible from 'freemiums' to subscriptions. While this appears attractive in order to collect more royalties, it is not without risks for the artists. As we have seen in relation to non-interactive services, US law prescribed how the royalties ought to be shared between artists and record labels. By contrast, the law does not provide anything for interactive services which can hamper the money redistributed to artists. Consequently, it is essential for featuring and non-featuring artists to include a

¹⁰⁸ While Pandora is still considered as non-interactive, this status is being questioned by some commentators. Indeed, there are several customising features which brings it closer to interactive services. For example, the user can tell the platform the music she/he likes and alter the stream created by the algorithm. Yet, users cannot order the platform to play a specific track at a given time.

¹⁰⁹ Subsection 114(j)(6) and (7) of the Copyright Act, 17 U.S.C.

¹¹⁰ Sections 112 and 114 of the Copyright Act, 17 U.S.C.

¹¹¹ This statutory fee is predetermined by the US Copyright Royalty board (CRB). This CRB recently raised rates for services like Pandora by 20% effective January 1st, 2016. This means that non-interactive services have now to pay \$ 0.17 per 100 plays (instead of \$ 0.14) for the non-subscribed users and ad-supported streams through 2020.

¹¹² www.soundexchange.com

¹¹³ Backup musicians and session players.

¹¹⁴ As compulsory licenses do not exist in the UK, voluntary license is the default option.

provision in their recording contract with the record labels providing for the distribution of royalty shares deriving from these transmissions.¹¹⁵ The difficulty with these agreements, between interactive services and record labels, is that these are largely confidential. Yet, the revenue is generally calculated as a percentage of the service's gross revenue (deriving either from advertising or subscriptions) together with advances and per-performance minimums. Here, these services introduced 'freemiums' models (relying on advertising) and subscription models side-by-side since their conception to convince users to convert from the free and ad-supported model to the subscription model.

Along the development of these streaming services, emerged video-sharing websites such as YouTube.¹¹⁶ Despite the interactive nature of these platforms, there is no compulsory license. Therefore, YouTube needs to negotiate agreements with the record labels. Similarly to the agreements concluded with interactive services, the agreements with video-sharing websites are mostly covered by confidentiality (non-disclosure agreements), making it difficult to analyse the exact terms of the contracts. Nevertheless, we know that the royalties are based on a percentage of the advertising (and not a per stream basis) and/ or a subscription revenue (e.g. YouTube Red) which might also include per-performance revenues.¹¹⁷ This can have dramatic consequences for artists as if YouTube's ad inventory decreases, the royalties decrease too. Additionally, the ads generate revenues on a time-spent basis instead of a per-video basis.¹¹⁸

Until now, we analysed the royalty shares deriving from the performance rights of the sound recordings. However, as mentioned in section 3 above, these streaming services also need to pay royalties for the use of the composition. Therefore, streaming services need to distribute royalties to the right-holders of the music work and of the literary work recorded on the sound recording.

4.2.1 Self-publishing

The internet opens the possibility for artists to produce and distribute their music independently of intermediaries (or traditional intermediaries) such as record companies or music publishers. As retaining the production and distribution roles can be very costly, artists may still prefer to sign a contract with traditional music publishers. There are however trade-offs.

“The effects of digitization and the internet for the artists have been mixed. Music can now be produced much more easily with the help of digital sound recording and editing techniques. The creation and production of songs and albums has become more flexible and location independent,

¹¹⁵ In the UK, these are usually distributed by PPL.

¹¹⁶ Which recently led to the YouTube Music App. Launched in 2015, this app has the potential to be the way to distribute music as it used by more people than other streaming services such as Spotify or iTunes. See section 2.2.5 above.

¹¹⁷ Interestingly, this extends to UGC.

¹¹⁸ Which led to the '15' rule.

as music files can be transported through the internet and dubbed, edited and produced in different places. Artists can publish, market and distribute their music through online music platforms, music file sharing networks and social networks. This means that artists can directly reach their consumers, and are less dependent on intermediaries such as music publishers and record companies to produce and distribute their music. But the changes have also led to declining income from sales of recorded music. And not all artists have the skills and time to perform all the tasks that music publishers and record companies perform. Many artists therefore will still rely on the resources and pre-financing options of music firms. At the same time music firms tend to focus increasingly on their successful stars, in attempts to reduce the risks in an already struggling business, which makes it more difficult for beginning artists to sign contracts with record companies.”¹¹⁹

New intermediaries have also increased the ability for artists to self-produce their music and self-published their work via online intermediaries.

“[T]here’s another trend worth watching, which is the growth of fan-funding and direct sales sites, such as Bandcamp and Patreon, for independent musicians. Bandcamp helps artists sell their own music and pays out \$3.5m a month to its network of musicians. With Patreon, fans commit to paying a small amount whenever an artist releases something new: it pays out \$2m a month. If Tidal represents big artists seeking more control of digital music, these sites fulfil a similar role for independent musicians.” The Guardian (5 April 2015)¹²⁰

Thus, while it may be much less prevalent than for books, composers and musicians can choose to retain more control of the process of getting their works to the consumers. Assuming that, statistically, self-publishing artists are simply counted under Indie Labels, it is clear from Figure 9 above that the traditional producers, the record labels, have not faced a challenge similar to the book publishers.

4.3 Conclusion

Today’s record industry seems to become more diversified. We have experienced a burst of online music services, providing competition in the market. This led Merges and Solo to argue that excessive regulations of these services is unnecessary because the market provides enough protection for users.¹²¹

Nevertheless,

¹¹⁹ Andra Leurdijk and Otilie Nieuwenhuis, “Statistical, Ecosystems and Competitiveness Analysis of the Media and Content Industries: The Music Industry”, Reference Report by the Joint Research Centre of the European Commission EUR 25277, page 83 (2012), <http://ftp.jrc.es/EURdoc/JRC69816.pdf>.

¹²⁰ <https://www.theguardian.com/music/2015/apr/05/tidal-10-things-you-need-to-know-jay-z-madonna-music-streaming>.

¹²¹ A. Solo, ‘The Role of Copyright in an Age of Online Music Distribution’ (2014) 19 *Media and Arts Law Review*, p. 183; R. Merges, ‘IP Rights and Technological Platforms’ (2008) *SSRN* available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1315522 (last access date 25/08/2016).

the problem seems to lie in the agreements which these streaming services have to enter in order to exercise exclusive rights. Indeed, as uncovered in this section, streaming services have a lot in common with radio stations and yet, the licensing of these platforms is much more burdensome than for radio stations. Taking the example of an interactive subscription streaming service, such service needs to obtain a license from collecting rights societies for the use of the copyright-protected composition and for the sound recording. Therefore, not only does an interactive online service need to get a mechanical license for the reproduction of the sound recording, but also for the protected authorial works embodied in the sound recording. Given that there is no statutory rate, these licensing fees are subject to negotiations, generally between MCPS (representing the right-holders and creators of the musical compositions) and the British Phonographic Industry (BPI) representing the record labels. In addition, the online music distribution service needs to clear the performance and communication to the public rights. This means that the platform needs to get a license from PRS for Music and PPL. This fragmentation can be time consuming and burdensome for online music distribution services, especially when taking into consideration the need to get cross-border licensing. It also has the potential for hold-up if having a full repertoire is valuable.¹²² However, changes are underway to adapt to the online environment. PRS for Music and MCPS now license together to online music services.¹²³ Additionally, resulting from a partnership between PRS for Music, STIM and GEMA, an integrated licensing hub¹²⁴ (known as ICE) was launched in 2016 to facilitate multi-territory licensing of works within the EU territory, providing a real pan-European online music rights licensing hub.¹²⁵

Probably, one of the most important changes in the record industry market structure which can be derived from this section is that the album does not represent the market anymore.¹²⁶ While the market pre-digital could be measured by looking at the average income per album, the streaming market is measured with the value per user. To remedy the licensing and royalty issues, the best way to measure this market is perhaps to measure the average amount earned per album/track per streaming user. Additionally, consumers seem to be more accustomed to paying for the access to a service rather than access to individual artists' works. This reinforces the need for more transparency in the non-disclosure agreements signed between record labels and streaming services. In so doing, record labels often refuse to disclose the exact terms to the artists who may struggle to unravel the price at which their creative endeavour is being sold.¹²⁷

¹²² The difficulty with getting licences for a comprehensive coverage is highlighted in Morten Hviid, Simone Schroff and John Street, "Regulating CMOs by competition: an incomplete answer to the licensing problem?", CREATE Working Paper 2016/03, forthcoming in JIPITEC.

¹²³ The breakdown can be found at:

<http://www.prsformusic.com/creators/memberresources/mcpsroyalties/mcpsroyaltysources/onlineandmobile/jol/pages/jol.aspx> (last access date: 25/08/2016).

¹²⁴ Meaning that ICE's repertoire includes the repertoires of these three collecting societies, providing a 'one-stop shop' option for the EU territory.

¹²⁵ More information about this new venture can be found at:

<https://www.prsformusic.com/iceservices/Pages/default.aspx> (last access date: 25/08/2016).

¹²⁶ Except for the new bundled products mentioned in footnote 29.

¹²⁷ <https://basca.org.uk/public-affairs/thedaythemusicdied/>.

What is the role of record labels in digital music distribution? After all, the costs of manufacturing and distributing records have drastically declined. So far, these intermediaries act as ‘gatekeepers’ as the licensing deals have to be negotiated on a case-by-case basis and there is no statutory fee. Consequently, the ‘middle-man’ is not dead in the digital world. Yet, roles are displaced. Essentially, this means that record labels are able to block the distribution of online music by refusing to license content¹²⁸ or ask for a high royalty rate but as we have noted, record labels are not obliged to redistribute the income to the creators unless this has been included in a provision of the recording contract. And even where the contract does provide for the distribution of revenue, the royalty rate is generally low given the inequality in bargaining powers. Streaming services are often accused of low pay rates to artists. However, there is some merit in arguing that these low royalty rates are derived from the fragmentation of copyright and the complex licensing agreements, leading to higher transaction costs. The recent changes in the music industry and the ones yet to come, may remedy to this situation in order to create a competitive and sustainable streaming market.

Furthermore, the digital environment empowers independent creators and labels to enter the market. In this regard, record labels have lost their gatekeeper role as they are not responsible for deciding the music that consumers would listen to. The distribution of musical content is now available to everyone, allowing the consumers to make the decision as to the works they want to listen to.

Finally, record labels have acquired new roles and strengthened others. For example, record labels are essential for marketing and promotion of music. Indeed, given the mass dissemination of works over the Internet, consumers face an overabundance of choice and there are indications that consumers increasingly want to be told what music they are likely to enjoy without actually searching for it.¹²⁹ To do so, record labels play a crucial role in ensuring that the music is present on the various online music distribution services, is played on relevant radio programmes and obtain appropriate press coverage.¹³⁰

In conclusion, re-intermediation¹³¹ in the music industry has begun on two accounts. Firstly, traditional intermediaries such as collecting societies and record labels are inventing themselves to adapt¹³² to the

¹²⁸ This is currently happening with Spotify. Universal Music Group, Warner Music Group and Sony Music Entertainment which refuses to license works over long-term contracts, forcing Spotify to renegotiate on a monthly basis. See P. Resnikoff, Spotify IPO ‘On Hold’ as major labels refuse long-term contracts (24 August 2016) available at <http://www.digitalmusicnews.com/2016/08/24/spotify-ipo-hold-short-term-contracts/> (last access date 25/08/2016).

¹²⁹ See section 2.3 above.

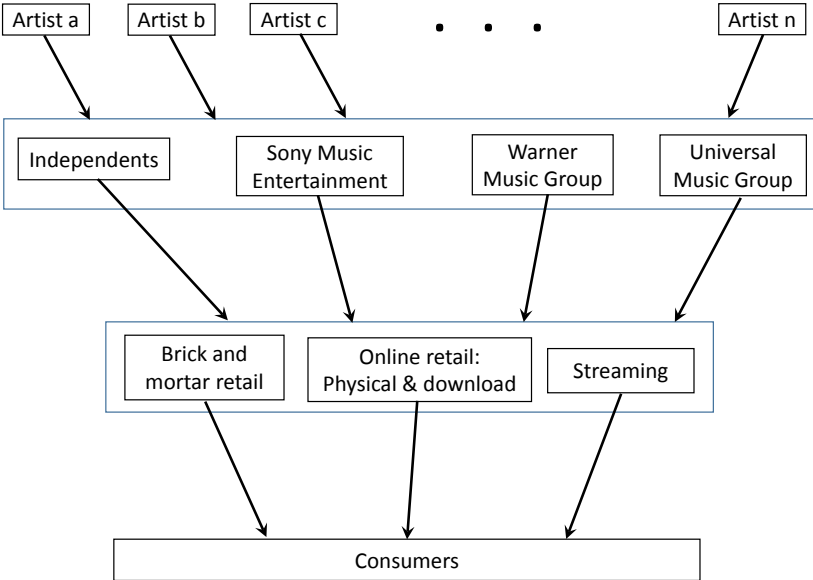
¹³⁰ These roles will become increasingly important if the licensing of online music is simplified, resulting in the entry of new platforms in the market.

¹³¹ For more on intermediation, disintermediation and re-intermediation in the record industry, see Bernardo F. and Martins L. G., ‘Disintermediation effects in the music business – a return to old times?’ (2013) available at https://musicbusinessresearch.files.wordpress.com/2013/06/bernardo_desintermediation-effects-in-the-music-business.pdf (last access date: 25/08/2016).

¹³² Though record labels appears to be lagging behind, see above footnote 128 and D. Kusek and G. Leonhard, *The future of music: Manifesto for the digital music revolution* (Berklee Press, 2005), pp. 127-138.

digital economy and new intermediaries emerge such as the various online streaming services, mimicking physical distribution of music. Lastly, digital aggregators materialised as new intermediaries,¹³³ providing services to supply creative content in the appropriate digital formats to the digital retailers. The overall picture can be described at in figure 10 below:

Figure 10: current structure



Crucially in the figure, both the record company level and the retail level is now best characterised as concentrated oligopolies. Although there is some evidence that some consumers multi-home, using streaming to identify new artists but then wanting to purchase physical copies of the artists they like,¹³⁴ the fragmentation is likely to reduce competition. Having successive oligopolies may lead to a phenomenon referred to as double marginalisation, where the upstream oligopolists mark-up their costs when setting the wholesale price. This wholesale price is then treated as (part of) marginal costs by the downstream retailers who in turn mark this up, thus leading to some of the costs in the vertical chain being marked up multiple times. The consequence of this is that retail prices will be higher than one might have expected to arise simply from the level of competition.

¹³³ Harrison argues that this results in a shift of dynamics, empowering the artists and away from traditional record labels. Harrison, *Music: the business* (Virgin Books, 6th ed., 2014) p. 188.

¹³⁴ BPI, “Music fans deliver verdict on digital versus physical: it’s not either/or – it’s BOTH!”, AudienceNet study, <https://www.bpi.co.uk/home/music-fans-deliver-verdict-on-digital-versus-physical-its-not-either-or-its-both.aspx>, December 2015.

5. Pricing behaviour

One of the concerns raised above is that there may be insufficient competition in the retail level. Assessing this is complicated by several of the main retailers also selling associated hardware and the potential associated lock-in between device and retailer which may lead to relatively lower retail prices for music. Obtaining relevant data is generally difficult. In this section, we make use of a data set collected for a report written for the UK Intellectual Property Office (IPO). The dataset was published on the 15th March 2013 by the Intellectual Property Office (IPO) in the UK as part of the IPO research: Copyright project¹³⁵. This dataset contains data for 18,958 titles available in different formats and from different stores which sell the music online to consumers. Table 1 shows a description of the data in terms of coverage. The dataset includes titles released during various years which are sold in, at least, one of the intermediaries included in the dataset and importantly the prices set. The dataset includes titles released between 1956 and 2010 and sold through four different retailers. While Amazon, iTunes and HMV are large retailers, 7Digital is a relatively new entrant, founded in 2004. In 2009 HMV purchased 50% of 7Digital.¹³⁶ After the data were collected, 7Digital became the digital music service for HMV.

Table 1: Description of the data

store	type of product	type of file	observations	total
7Digital	Digital music	MP3 (MP4, FLAC)	4221 (1, 4)	4226
Amazon	Digital music	MP3	1968	4648
	Audio CD		2075	
	Other media ¹³⁷		605	
HMV	Digital music	MP3	484	1038
	Audio CD		462	
	Vinyl		92	
iTunes	Digital music	AAC	9046	9046
TOTAL				18958

¹³⁵ Dataset is available in the following link: <https://www.gov.uk/government/publications/private-copying-as-is-the-associated-report> (Roberto Camerani, Nicola Grassano, Diego Chavarro and Puay Tang, "Private Copying". Report to the UK Intellectual Property Office (2013)). For Music, the dataset consists of 18,958 observations including albums in several formats (digital files, CDs, Vinyl discs, audio cassettes, etc.). The analysis covers 17,272 albums and focused on digital albums and CDs (for which details on number of tracks were available).

¹³⁶ "HMV buys 50% of 7digital for £7.7m", The Guardian, 3 September 2009. See:

<https://www.theguardian.com/business/2009/sep/03/hmv-buys-7digital>.

¹³⁷ Audio Cassette (98), Blu-ray (17) DVD (174), Mini-Disc (26), VHS Tape (47), Vinyl (246).

These data will afford us a glimpse of the price setting decision by these four retailers for the digital and non-digital media. We will first look for patterns in price setting and then use the fact that we can match prices for the same music at two or more retailers to carry out direct comparison of price setting.

5.1 Exploration of price points

While the sample has a very large number of price points – the full sample has 1426 unique price levels - we find a focus on relatively few price points as 848 occur once and 251 twice. The four most frequent price points are given in table 2 below.

Table 2: frequent price points

Store	£7.99	£4.99	£0.89	£0.99	Unique price points	Total obs.
7Digital	2427	287	0	0	34	4226
Amazon Digital	15	29	815	0	68	1968
HMV Digital	249	54	0	0	23	484
iTunes	2746	533	0	668	96	9046
Amazon non-digital	12	28	1	15	1378	2680
HMV non-digital	0	0	0	0	147	554
Total	5449	931	816	683	1426	18958

The first thing to note from the table is the huge variability in prices for physical copies of music. In particular, Amazon appears to use a very large number of price points for CDs. In that regard alone, digital and non-digital music is different. Secondly, there are price points which are particularly prevalent, at least among some, if not all, retailers. Before disaggregating the sample further, we note that the price points £7.99 and £4.99 are solely prices quoted for albums while the two lower prices are mostly for singles. In particular, £0.89 is quoted for singles in all but one case while £0.99 is quoted for singles in all but 15 cases. Splitting the sample into albums and singles we find that the four most frequent price levels account for more than 50% of albums.¹³⁸ The actual numbers are given in tables 3 and 4 below.

Table 3: frequency of price points for albums

Price point	Frequency	% of total sample	Amazon digital	iTunes	7Digital
7.99	5449	36.9%	15	2746	2423
4.99	931	6.3%	29	522	287

¹³⁸ Prices above £3.99 is for albums while the prices below tend to be for Singles or EPs. Of the albums, only 1041 have a price below £3.99, corresponding to 7% of the sample. There are 2781 singles, where 2144 of these have prices below £1.00 and no price is above £3.00.

9.99	665	4.5%	12	399	218
5.99	659	4.5%	27	455	124
Total	14769	100%	818	6041	4205

For albums, we note that the most popular price point end in .99 and that these are almost exclusively set by two of the retailers, 7Digital and iTunes. Amazon, on the other hand, appears to have a preference in .49 endings – with the three most common ones (£4.49, £5.49 and £7.49) accounting for 503 of the 818 (61%) offerings.¹³⁹

Table 4: frequency of price points for singles

Price point	Frequency	% of total sample	Amazon	iTunes
0.89	815	29.31%	815	0
0.99	668	24.02%	0	668
0.79	347	12.48%	24	323
0.69	297	10.68%	297	0
Total	2781		1148	1632

Again, we see a preference for the two large digital retailers to focus on different price endings. Note further that all but one single are either offered by Amazon or iTunes. While Amazon is almost a two price store for singles, £0.69 and £0.89 account for almost 97% of their offerings, iTunes show much greater variety, with the two most typical prices, £0.79 and £0.99 accounting for 61% of their offerings.

Looking at price points may give us a hint that retailers may not be competing head to head, but without knowing what is charged for the same record, such a comparison contains very little information. Fortunately, the data set is rich enough that we can identify price-pairs where the same record is sold at two different retail outlets. We turn to this in the next subsection.

5.2 Pairwise comparison

The data contains information about the retailer, some characteristics of the record including artist and title, and in particular the price of the record. This enables pair-wise comparisons where we have the same record sold by two different retailers. We have cleaned the data and matched albums and records which were offered by more than one retailer. In selecting which pairs to compare, we have required that they match in terms of both title and the number of tracks included. There may be unrecorded characteristics of the records on which the pairs differ and hence, there is a risk that there may be some pairs in the sample

¹³⁹ Digging a bit deeper into the sample, 77% of Amazon album prices end in .49.

where we are not comparing like with like. To guard against that, and as a robustness test, we also provide results where for the digital downloads, the price difference is less than £3.00. We are interested in the average price difference between two retailers but also the incidence of identical prices.

Table 5: 7Digital vs Amazon

	whole sample	in top 20
Average price difference (7Digital - Amazon) in £ (S.E in bracket)	0.800 (0.075)	0.771 (0.077)
Number of products with identical prices	47	44
Number of products where Amazon is more expensive	53	52
Number of products where 7Digital is more expensive	302	278
Total number of products	402	374

From table 5, it is evident that 7 Digital is on average (statistically and economically significantly) 80 pence more expensive than Amazon. This is also reflected in the fact that for roughly 75% of the price-pairs, 7Digital has the higher price. If we constrain the comparisons to the 357 price pairs where the price difference is no more than £3, the difference reduces to £0.496, indicating that some - but not all - of the difference can be explained by large outliers which are potentially inappropriate comparisons. Note that the majority of the records for which we can create the matched price pairs have been in the chart top 20. If we constrain our interest to those price-pairs, the significant difference remains.

Table 6: iTunes vs 7Digital

	whole sample	in top 20
Average price difference (iTunes - 7Digital) in £ (S.E in bracket)	0.033 (0.040)	0.156 (0.086)
Number of products with identical prices	885	188
Number of products where iTunes is more expensive	311	53
Number of products where 7Digital is more expensive	359	95
Total number of products	1555	336

From table 6 we see that in the sample, iTunes on average about 3 pence more expensive than 7Digital. However, this difference is not statistically (nor economically) different from zero. The difference remains statistically and economically insignificant even if we exclude the 58 pairs where the difference is above £3. Interestingly for this sample, if we constrain our interest to records who have been in the top 20 of the charts, the difference becomes statistically significant at the 5% level and substantially more economically meaningful, increasing to around 15 pence. Note also that about 80% of the price-pairs occur outside the top 20, suggesting that these two retailers compete over a large range of products.

Comparing 7Digital with the final retailer, HMV is interesting for two reasons. Firstly, in all 351 cases price-pairs were identical and secondly, none of the records had been in the top 20. It may be that for the less high profile records, the retailers are more likely to follow recommended retail prices. However, it is worth bearing in mind that HMV had a 50% stake in 7Digital and that shortly after this data was collected, 7Digital became the digital arm of HMV. Table 7 provide information on iTunes vs HMV.

Table 7: iTunes vs HMV

	whole sample
Average price difference (iTunes - HMV) in £ (S.E in bracket)	0.216 (0.077)
Number of products with identical prices	160
Number of products where iTunes is more expensive	41
Number of products where HMV is more expensive	77
Total number of products	278

In the case of iTunes vs HMV, all records are in the top 20 and we find that iTunes is on average statistically and economically significantly more expensive. If we exclude the 9 price-pairs where the difference is above £3, the average difference reduces to 0.101 with a standard error of 0.067, much smaller and only statistically significantly different from zero at the 10% level. Interestingly, the majority of the observations have price-pairs with identical prices.

Table 8: iTunes vs Amazon

	whole sample	in top 20
Average price difference (iTunes - Amazon) in £ (S.E in bracket)	-0.772 (0.079)	-0.846 (0.091)

Number of products with identical prices	16	14
Number of products where iTunes is more expensive	259	184
Number of products where Amazon is more expensive	40	23
Total number of products	315	221

From table 8 we find that iTunes is on average statistically and economically significantly cheaper than Amazon on the pairs we can match up. This contrasts with the raw numbers found in table 4 where one might get the impression that Amazon was the cheaper retailer. This difference falls to -0.586 if we focus on the 293 price pairs which are within £3 of each other. The difference becomes bigger if we focus on top 20 hits.

Table 9: Amazon vs HMV

	whole sample
Average price difference (Amazon – HMV) in £ (S.E in bracket)	-0.744 (0.086)
Number of products with identical prices	42
Number of products where Amazon is more expensive	217
Number of products where HMV is more expensive	49
Total number of products	308

This is another subcase where all price pairs are from records in the top 20. We find that Amazon is on average statistically and economically significantly cheaper than HMV. This falls to -0.438 if we focus on the 279 price pairs which are within £3 of each other.

Looking across the sub-samples of digital downloads, it is noticeable that where the record has been in the top 20, the price dispersion is larger, suggesting a greater degree of active competition. This is what one would expect and is, if nothing else, reassuring. It is also noticeable that it is not possible to rank the four retailers in terms of who is the more expensive. It depends entirely on what records the consumer purchases. In the majority of cases, it would appear that retailers compete. Of the 3209 price-pairs we could construct, in only 29% of these were prices identical for the two retailers. Pooling the price pairs and removing those where the price differences exceed £3, leaving us with 3045 observations, of which 1414

are in the top 20 and the remaining 1631 are not. When looking across the whole sample of price-pairs, the average difference in price between pairs is not significantly different between top 20 and the rest. However, as expected, the standard deviation is higher in the top-20 subsample.

Finally, it is worth looking at the two retailers who also sell CDs, Amazon and HMV. Looking at the price pairs in this case, we observe a considerably higher price dispersion. In some cases, this difference is not realistic and, although nothing else indicates this, the products must simply be different [in one extreme case, the difference in price is £109.09]. Restricting attention to those price pairs where the difference is no more than the average recommended price for the sample (£11.08) we find:

Table 10: Amazon vs HMV - CDs

	whole sample
Average price difference (Amazon – HMV) in £ (S.E in bracket)	5.267 (0.182)
Number of products with identical prices	0
Number of products where Amazon is more expensive	14
Number of products where HMV is more expensive	291
Total number of products	305

Note that in this comparison between an internet retailer and a (mostly) brick and mortar store, oddly the former is much more expensive. However, taken together with the information in table 2 about the use of price points, it may be that looked across a bundle of CDs, Amazon may still be cheaper.

While no distinct patterns emerge from this particular data set in terms of retailers who are consistently cheaper or more expensive than others, we do observe significant price differences.¹⁴⁰ With intense price competition, we would expect to see more cases of identical prices for the same product. The data thus points towards some degree of market power at the retail level, although we are not able to assess the strength of this market power.

¹⁴⁰ Neither observation is uncommon. For example Ganesh Iyer and Amit Pazgal, “Internet Shopping Agents: Virtual Colocation and Competition”, 22(1) Marketing Science, 85-106 (2003) find that no single firm consistently charges the low price. Similarly, Yuriy Gorodnichenko and Oleksandr Talavera, “Price Setting in Online Markets: Basic Facts, International Comparisons, and Cross-border Integration”, NBER Working Paper No. 20406 (2014) document that price dispersion in online markets is substantial and persistent.

6. Conclusion

In this paper, we demonstrated how the value chain structure of the music record industry evolved (and still does). Changes have been manifold. Firstly, at retail level, digital downloads have contributed significantly to the delivery of music to consumers but this is still relatively benign compared to the growth of streaming.¹⁴¹ While it is recognised that some consumers might prefer obtaining a physical copy, this may be less about consuming music and more about owning a collectible. Therefore, whether one considers digital and physical music as complements or substitutes depends on consumer preferences and on how supply (music available) is presented to the consumer. With an ever-expanding repertoire, consumers require new ways of navigating through this long tail. This explains the growing consumer interest in services which identify the content they are likely to want to access without the need for them to look for the content. Secondly, at production level, Richard Caves' centre of gravity of the nexus of contracts¹⁴² theoretically appears to have moved from record labels and publishers to ISPs. In Caves' model, record labels and publishers were at the centre of contracts because they bore the most risks and gained rewards as residual claimants of the stream of revenues generated. Our research demonstrates the rise of disintermediated vertical services which displaced the centre of contracts towards internet service providers (ISPs). Today, these intermediaries are essential for the distribution of digital music to consumers. Even further, with the rise of apps, there is a theoretical possibility to get rid of (some) intermediaries, allowing content creators to directly sell music to consumers on their webpage for example. This, consequently, places the content creator at the centre of contractual relationships.

While currently record labels and publishers appear to maintain their powerful position in the vertical value chain, their position is significantly reduced because of advances of technology, the Internet and the various possibilities for outsourcing part of the music production without the intermediation of labels or publishers. In these circumstances, content creators (with the right project management skills) can plausibly by-pass traditional intermediaries to deal directly with music retailers or consumers. The threat of "going it alone" is likely to lead artists to obtain better terms with publishers and record labels if they choose to deal with these established intermediaries. How effective this threat to by-pass traditional intermediaries is likely to be, depends on a number of issues beyond the scope of this paper, including any possible reforms to copyright laws and the future structure and behaviour of the CMOs.

One might hence reasonably expect that established artists to be better off financially with the new digital structures, thus having a greater incentive to create. The change in structure is considerably less likely to lead to a better deal for the consumers. A greater level of concentration at several successive vertical levels

¹⁴¹ According to a music industry blog, for streaming the share of label revenues was 34% in 2016, up from 23% in 2015, see: <https://musicindustryblog.wordpress.com/2017/02/26/global-recorded-market-music-market-shares-2016/>.

¹⁴² Richard E. Caves, *Creative industries: Contracts between Arts and Commerce*, Harvard University Press (2000), in particular chapter 4.

combined with increased bargaining power of established artists is theoretically likely to increase the upwards distortion of prices for their music. The effect on the less established and new artists is unclear. While they do have the option to promote themselves through several of the ISPs, the long tail makes this ever more challenging. Whether current structures and regulations support the weaker parties in this market remains an open question.¹⁴³

¹⁴³ The theoretical argument would be along the lines that an increase in artist bargaining power would raise the costs to the record labels and publishers. Because of their market power they will in turn add a mark-up to these increased costs, leading to an increase in wholesale prices. This in turn, with a more concentrated retail level, leads to a further mark-up of the higher wholesale price to yield a higher price to the consumer.



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