

All Samples Cleared!

The implications of the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling on the quantity and nature of samples used and record label affiliation for Hip Hop, Rap, and R&B artists.

Student Name: Mariana Brandão Saúde

Student Number: 527261

Supervisor: Dr. Christian Handke

MA Cultural Economics and Entrepreneurship
Erasmus School of History, Culture and Communication
Erasmus University Rotterdam

Master's Thesis

June 2020

All Samples Cleared!

The implications of the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling on the quantity and nature of samples used and record label affiliation for Hip Hop, Rap, and R&B artists.

Abstract:

Before 1991 the use of samples of pre-existing recordings to create new songs was relatively free of consequences or legal implications. However, December 17, 1991 marked the date when the first music sampling case made the courts, when Hip-Hop artist Biz Markie, affiliated with *Warner Bros. Records*, was accused of copyright infringement for incorporating an unlicensed sample owned by the record label *Grand Upright Music* in one of his songs. This has been considered by many scholars and artists a turning point for the music industry, especially for the genres of Hip-Hop, Rap and R&B, which relied heavily on sampling.

Using data from selected Hot 50 Hip-Hop, Rap and R&B Billboard Charts between 1990 and 1993, an interrupted time series analysis was conducted in order to determine whether the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling had an impact on the number major label affiliated songs on the Billboard charts, on the total number of samples and on the percentage of samples that are interpolations as opposed to direct samples. The results indicate that, no causality can be directly established between the ruling and major label presence on the charts, number of samples or the percentage of replayed samples in songs, following the tighter copyright restrictions.

Keywords:

Sampling; Copyright; Corporatisation of the Music Industry; Record Labels; *Grand Upright Music, Ltd v. Warner Bros. Records Inc.*

Acknowledgements:

I would like to firstly thank my lecturer and supervisor Dr. Christian Handke for all the guidance and promptness to help me conduct this research.

Secondly, I would like to thank my family, Luís, Hortense and Miguel, for their support during the writing of this thesis, a process which is testing enough without the added pressure of a lockdown.

Finally, I would also like to thank Anna Marija, Ana Sofia, Hendrik, Maja, Matthew, Sophia and Victor for their help and support.

Table of Contents:

1. Introduction	5
2. Theoretical Framework	7
2.1. The Record Label Hierarchy.....	7
2.1.1. Major Record Labels.....	7
2.1.2. Distribution Deals.....	8
2.1.3. Independent Labels.....	9
2.2 “The Independents See Vultures Circling Overhead”.....	10
2.3 The Emergence of Sampling.....	11
2.4 <i>Grand Upright Music, Ltd v. Warner Bros. Records Inc.</i> Ruling.....	12
2.5 Sample Clearance Process.....	12
2.6 Record Labels as Safeguards.....	14
2.7 Copyright Law and its Implications on Freedom to Create.....	15
2.8. Hypotheses.....	16
3. Data	18
3.1. Sampling.....	18
3.2. Data Collection.....	18
3.3 Classification of Different Record Labels.....	19
3.4 Operationalisation of Concepts Into Variables.....	26
3.5 Descriptive Statistics.....	29
4. Results	32
4.1. Research Design.....	32
4.2 Interrupted Time-Series Results.....	33
4.2.1 Major Label Presence on Hot 50 Hip-Hop, Rap & R&B Charts.....	33
4.2.2 Sample Use Over Time.....	40
4.2.3 Percentage of Replayed Samples.....	46
5. Conclusion	52
5.1 Placing the research in the current state of the music industry.....	53
References	55
Appendix A	58
Appendix B	58
Appendix C	72

1. Introduction

By the end of the 1980's, the record industry was dominated by what was called the "Big Six" record labels - Sony, Warner, PolyGram, EMI, BMG and MCA. These labels represented 90% of total record sales in the US. The emergence of digital sampling in the early 1980's, which mainly related to the Hip-Hop, Rap and R&B music genres, caught the industry by surprise since it didn't fit the parameters of previous legislation regarding the protection of copyrighted works. Quoting an entertainment lawyer, Burnett (1992) states that sampling was "just another instance of law not keeping up with technology".

This issue was first challenged on December 17, 1991, in a dispute between *Grand Upright Music, Ltd* and *Warner Bros. Records Inc.*, when artist Biz Markie, represented by Warner Bros., was accused of copyright infringement due to the use of an unauthorised sample in one of his songs. As a consequence, Markie had to pay \$250,000 in damages and the record label had to discontinue the sales for the song. The artist humorously addresses the lawsuit on his 1993 album *All Samples Cleared!*, from which the present research borrows its title.

This marked the first case that confronted unlicensed digital sampling in court, which was until then either solved by settlements between record labels or performed by many artists with no consequences and with a "catch me if you can" attitude (Latham, 2003). The outcome of this ruling caused a mass rush in licensing samples in order to avoid similar fates as Biz Markie's, as well as "paranoia" and "extreme caution" by artists when it came to using samples on their songs (Falstrom, 1994).

This case occurred at a time where the hip-hop, rap and R&B genres were being embraced by a more "mainstream" audience and were slowly incorporating into popular culture. Artists were also shifting from independent to major record labels, a move which was considered by many a betrayal of the genre's ideology of *art for art's sake* (Lena, 2006).

This research seeks to answer the questions on whether the immediate aftermath of the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling had a significant effect on the use of samples in Hip-Hop, Rap and R&B songs and on the corporatisation of independent labels, as well as its consequences for the future of sampling and artists.

To investigate this issue, a quasi-experimental design based on an interrupted time-series analysis was conducted using data from selected Hot 50 Hip-Hop, Rap and R&B charts made available by Billboard and from the community sourced database WhoSampled, which provides information on the original sources of sample-based songs.

The results indicate that there was not a clear-cut causal effect of the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling on the number of samples used, or on the shift of the Hip Hop, Rap and R&B genres from independent to major labels. Any changes to the way artists and producers used sampling in their songs in response to the increasing bureaucratisation of licensing samples were not evidently visible within the time frame studied.

Despite the outcome of the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling, and 29 years after it took place, artists follow some suggested guidelines but there are still no fixed rules on the sampling clearance process or on what is considered copyright infringement. This makes the issue of sampling as relevant as ever and raises questions about whether samplers and sampled artists are doomed to operate in a “legal limbo” eternally (Falstrom, 1994).

This research will be structured as follows. Section 2 will provide an overview of the different types of record labels in the music industry, give a brief explanation of the history of sampling and the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling. This section ends with an overview of research done on the corporatisation of the music industry, digital sampling and copyright law. In section 3 the methodology for this research will be presented along with an explanation of the variables created for the purpose of testing the hypotheses. Section 4 will proceed to present the results obtained during the analysis, and interpret them relative to the hypothesised results. Finally, section 5 will present any final conclusions and applications of this research on the current context of the music industry, 29 years after the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* court decision.

2. Theoretical Framework

2.1. The Record Label Hierarchy

Before delving into the issue of copyright and sampling, it is useful to understand the state of the record industry at the beginning of the 1990's. While some aspects of it are still applicable now, this next section will explain the main functions of the different types of record label and how they related to the major and independent labels systems.

The first type of record label considered will be the "Big Six" record labels of the early 1990's, their subsidiaries and artist-imprint labels. Secondly, the relationships between major and independent labels are explored, mainly regarding distribution deals. Finally, the concept of independent record labels and their role and identity in the early 1990's will be considered.

2.1.1. Major Record Labels

“Big Six” Major Record Labels:

The labels which, during the time-frame of this study, were widely recognised as the “Big Six” major phonogram companies were Sony, Warner, PolyGram, EMI, BMG and MCA. As of 1992, these companies collectively accounted for over 90% of total sales in the USA and between 70 to 80% of global sales (Burnett, 1992). Most of these entities integrated wider communications conglomerates, which operated a music-dedicated division alongside other services such as film companies, hardware production or publishing departments.

The major labels, apart from running several “in-house” labels, also dealt with artist acquisition, manufacturing, music publishing and promotion (Lee, 1995). The concentration of the majority of total sales and output on these “Big Six” companies, as well as their high vertical integration with other complementary services to the industries in which they operate, made these firms capable of developing a strong operationalisation of their business and distribution channels, which served smaller firms with less efficient means.

Within the Major Label scope, two types of in-house record labels will be studied, the first one being Subsidiary Labels and the second one Artist-Imprint Labels, which will be discussed next.

Subsidiary Labels:

Following the “Big Six” major record labels are their subsidiary labels. In the corporate world, a subsidiary is a company that belongs to another company, known as the parent company. In order to be considered a subsidiary, the parent company must control at least 50% of the company.

In the case of record labels, subsidiary labels are those which operate under the umbrella of a major record label. This can be the example of labels which were already fully involved and dependent on a major on their genesis, but can also be record labels which started off independently, and were eventually wholly or partially acquired by a “Big Six” record label.

Artist-Imprint Labels (Joint Ventures and Production Deals):

Artist-Imprint Labels are record labels established by joining the forces of an artist and a major. Such partnership can be achieved through two different kind of deals: joint ventures and production deals.

As explained in Billboard Magazine, a joint venture is a pact in which the major label finances the operation of the new label and acts as a business partner, while the artist works as the creative arm. Any profits from the joint venture are usually equally split between the artist and the major label. A joint venture can be dismantled and, if that is the case, the assets are usually split between the two parties.

Regarding a production deal, these are a safer and less risky option for record labels, since they own the assets of the imprint. Under a production deal, the label still incurs the expenses of the imprint, however, profits are not equally split between the two parties. Instead, the major label gives the artist’s imprint a set royalty rate. The artist’s task is to find new talents and sign them at a lower royalty rate than the one set by the major label, with the agreement that they will keep that difference for themselves.

The reasoning behind a major label giving an artist their own imprint label relies on the major’s belief that the artist has a “good eye for talent”, and is capable of bringing to the company some novelty that goes beyond the current capacities of the label’s A&R team.

Generally, artists affiliate their label with the major label which they are signed to. These deals work as an incentive to the artist, as a reward for their success and as an investment by the major label to make sure that their artists are satisfied with what the major label is offering them and do not consider leaving it for a competitor.

2.1.2. Distribution Deals:

This section talks about distribution deals between major and independent record labels, which are the predominant type of deal between independent and major labels. As mentioned before, the major label system has the advantage of investing resources into having developed distribution channels. This can be sold as a service to independent labels, who operate independently and are in charge of the sales, promotion and marketing, relying on the major solely for the purpose of distributing their material.

While distribution deals seem the desirable way to go for an independent label, as they allow it to keep its identity and autonomy, major labels looked at distribution contracts as a tool to control markets and considered the independent labels which they distributed to be part of their overall portfolios (Tschmuck, 2006). By establishing contracts with a great number of creators, major labels were able to exploit economies of scale and scope (Handke, 2020).

Distribution deals integrated labels' business strategy of adhering to the marketisation of emerging genres and targeting niche markets without having to deal with the risks of failure involved in doing so, since they did not own the independent labels. Nevertheless, if such a deal proved to be successful, majors would often make a move towards acquiring the independents and making them a subsidiary label under their umbrella.

Ultimately, the majors profited from distribution deals at times where the artists signed by the independent record labels were involved in polemics and scandals, since the majors' name was not directly associated with the act but they would benefit from the sales increase due to publicity and popular attention (Tschmuck, 2006).

2.1.3. Independent Labels:

Last on the record label hierarchy are independent record labels. The concept of independence, and mainly in the music industry, has changed its meaning over time and has become increasingly broader. There is therefore a need to situate the concept of independent record labels in the time to which the present research refers to, which is the beginning of the 1990's. In the 1990's, independent record labels were looked at as an alternative to the oligopolistic practices of major record labels (Mazierska et al. 2018).

Independent labels were considered to have an "artistic bottom line", as opposed to financial (Anderson, 1993), and started off as platforms to accommodate the genres that fell outside the scope of the more popular and commercial genres marketed by major labels and associated with the beliefs of a "dominant culture". Independent labels had the purpose of connecting with "historically dislocated social groups" and target their releases to niche music markets (Lee, 1995), as well as signing the acts that the major record labels left unnoticed.

One of the key characteristics of independent record labels was not having a direct connection to the vertically integrated major labels, although "ethical and aesthetic factors were equally important" (Mazierska et al. 2018). Quoting Hesmondhalgh (1999), Mazierska et al. (2018) attributed the aesthetic based on "mobilization and access" as a key determinant of independent record labels' identity.

While Hip-Hop, Rap and R&B genres were examples of genres represented primarily by independent labels for falling outside the likes of the more popular and commercial genres, this trend was shifting and the genres were being embraced by a more mainstream audience.

As seen on the previous section, major labels started keeping a close eye on the genres and offered to distribute them, anticipating their increase in popularity, and, as a consequence, independent labels' core values were questioned by the possibility of integrating the major label system.

2.2 “The Independents See Vultures Circling Overhead”

The title of this section borrows its name from a New York Times article from 1991 which described the struggles of independent record labels of keeping in business. The main reason for this was the financial burden that arose due to the switch from LP's to CD's and the “defection” of the independent's most popular bands to the major labels (Browne, 1991).

While independent labels were widely recognised for “filling the void” by signing the bands and genres that the majors overlooked, the consolidation of the record labels into the “Big Six” conglomerates that dominated the industry, and which represented the majority of total sales, was a threat to independent labels.

Nevertheless, Browne (1991) acknowledged the odd one out on this trend, which was the independent rap labels that, by combining their operation with a major-label distribution, were surviving and striving in the industry.

Lee (1995) adds that this underlying assumption that independent labels target the niche markets needs to be questioned, given that what was before considered niche was slowly being accepted by the wider public and incorporated into the popular music taste. Moreover, major labels increasingly had the mechanisms and mission of also targeting niche markets.

The majors' effort of increasing musical diversity relied on a “decentralised production”, which they achieved by establishing semi-autonomous in-house labels – the aforementioned subsidiary labels – which could emulate the practices of independent labels (Lena, 2006).

On a research which sought understand whether the context of production, namely the shift from independent to major, influenced the content of rap music singles, Lena (2006) found a significant difference between the content of rap songs affiliated with majors and independent labels.

While the songs linked to independent labels had a strong emphasis on anti-corporate values that arose from the rappers vision of “art for art's sake”, major labels were at first associated with the majority of the “puerile” rap. However, from 1988 onwards, there was a significant shift to the so-called “hardcore rap”. This rap subgenre was mainly linked to the character of the “hustler”, which seemed for artists the possible reconciliation between rap music and commercial culture and wealthiness. Artists who ‘surrendered’ to the major label system relied on this character to establish a new identity for themselves (Lena, 2006).

Also regarding the corporatisation of Rap music, Myer et al. (2007) conducted a textual analysis of Hot 100 Billboard Charts from 1990 until 2005, with the aim of examining the relationship between label ownership, commodification and commercialisation of the hip hop and rap genres. Despite the lack of documented empirical support, the authors recognised 1997 as the year in which large music conglomerates began acquiring independent rap and hip hop labels, which also coincided with the year that the genres grew their presence in the Billboard Hot 100 charts. Moreover, the authors concluded that, while major-label acquisition represented a boost on independent's record sales, the majors adopted a risk-averse position and only looked out for them once they had notable releases and commercial success.

The main reason for the homogenisation of hip hop and rap music was attributed to the dominance of the pop music genre and the increase in pop and hip hop collaborations. This homogenisation ultimately affected the authenticity of rap music, which was increasingly more targeted towards a more "mainstream" public and challenging diversity in the music industry. The present research seeks to add more empirical support to the discussion of the corporatisation of Hip-Hop, Rap and R&B genres suggested by Myer et al. (2007).

2.3 The Emergence of Sampling

Sampling can be defined as the process of digitally copying a portion of a pre-existing recording and inserting it into a new recording". (Wilson, 2002)

The origins of sampling are traced back to Jamaica, between the late 1950's and the 1960's (Reilly, 2008). Jamaican disc jockeys (DJ's) began experimenting with "dub", which was a musical form that allowed the combination of different recordings into a single work (Szymanski, 1996), and would compete against themselves by chanting over a record that was playing in the background, which was called the "talk-over" technique (Reilly, 2008).

This practice made its way to the United States and was embraced by American DJ's, allowing the emergence of other techniques such as "scratching", "phasing" or "beat juggling". These processes, however, were not mechanic and therefore were limited to the manual dexterity of DJ's (Szymanski, 1996; Tschmuck, 2006).

The emergence of the musical instrumental digital interface (MIDI) device, in the mid-1980's, came to revolutionise sampling and make it a pervasive technique in music production. This device allowed producers to emulate digitally what the DJ's had been doing manually until then, and its low cost and easy accessibility allowed sampling to grow in use and establish itself among hip-hop artists (Latham, 2003). The fact that technology continued to improve and equipment was becoming less expensive over time allowed for emerging artists to venture into sampling, a move which would come with a cost (Barnet et al., 2001).

2.4 *Grand Upright Music, Ltd v. Warner Bros. Records Inc. Ruling*

Before 1991 the usage of samples of pre-existing recordings to create new songs was more or less free of consequences or implications. However, December 17, 1991 marked the date when the first music sampling case made the courts. This was a dispute between *Grand Upright Music, Ltd v. Warner Bros. Records Inc.*, in which the first accused one of *Warner Bros. Records Inc.*'s artists, Biz Markie, of using a sample of the song "Alone Again (Naturally)" by the singer-songwriter Raymond "Gilbert" O'Sullivan, represented by *Grand Upright Music, Ltd*, without the label's authorisation (Falstrom, 1994).

The court decision provided "minimal copyright analysis" and was based upon the idea that the misuse of a sample, no matter its length, can be considered copyright infringement (Szymanski, 1996). This view was emphasised by the court's opening statement "thou shalt not steal", quoted from the Bible and demarcating a clear view on the judge's opinion: that "sampling equals theft" (Latham, 2003; Fastrom, 1994). It was, ultimately, this straightforward statement that caused panic among samplers and record labels and paved the way for a constant uncertainty regarding the legitimacy of the practice.

Falstrom (1994) studied the possible implications of the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* case. The author has pointed out that the effects of the ruling were visible, and resulted on a "noticeably more hostile climate for samplers". The case has lead the way to an eventful wave of litigation cases, starting from a lawsuit filed four days before the ruling, another filed four days after, and several others in the months that followed Biz Markie's adverse court decision (Falstrom, 1994).

As a consequence, sampling became a "hazardous occupation" and songs that contained samples went through a period of uncertainty while creators waited for the samples to be cleared. This lead Falstrom (1994) to believe that these difficulties might cause a future abandonment of sampling as an art form, since its risks were too high.

Latham (2003) argues that the issue of sampling presented only two possible exits: the path of improvidence, which is counterproductive due to the increased cautiousness of artists and record labels and the pact of imprudence, which is undesirable as it adopts the aforementioned "catch me if you can attitude. According to Latham (2003), the industry is missing a third path of adequate and well-defined guidelines when it comes to sampling.

2.5 Sample Clearance Process

The tricky part of clearing a sample is that one permission does not suffice, because a song is protected by two different kinds of rights: the right to use the sound recording and the right to use the underlying musical composition of the song. The first right is licensed for the usage of a master recording, which is often owned by a record label, and secondly, the

composition right consists of a license for the usage of the underlying composition, which is controlled by the publisher or songwriter of the song (Reilly, 2008). It was therefore a troublesome, time and resource-consuming process since a song was created and the artist obtained a 'green light' from the two separate copyright detainers to use the sampled-song on his composition.

It is relevant to clarify that it is not required by copyright detainers to grant the artist the permission. The most common reason for artists not allowing their songs to be sampled, including the reason of Gilbert O'Sullivan, is concern over the loss of the original meaning of the sampled song when incorporated in another record. (Falstrom, 1994).

Moreover, record labels did not always answer promptly and in many cases, between the interval of time when the request for the use of the sound recording was made and the response time, songs were released anyway. This was actually what happened to Biz Markie, who in July 1991 sent a letter to Terry O'Sullivan, the brother and representative of Gilbert O'Sullivan, seeking for the permission to use the sample of his song. The trouble started when Warner Bros. released the song in August 1991, before Terry's answer (Falstrom, 1994). To make this situation even worse, DJ Jazzy Joyce, a New York-based Hip-Hop DJ and producer, also revealed in an interview that some record labels did not respond rapidly to requests for licensing on purpose, and waited for the songs to be released without their permission to sue them (Sewell, 2014).

Along with the sample-clearance madness that arose from this court decision, this period was also marked by the emergence of *copyright trolls*, namely the record labels Bridgeport and Tuff Music. Following the recent attention on the copyright protection of sampled-work, these labels took advantage of their vast catalogue of genres such as jazz, funk and blues, and of the strategic acquisition of the rights to songs that were commonly sampled by other artists, to furtherly sue every artist that sampled them over time (Simcoe et al., 2019). Such events led to a further questioning of whether record labels have an active role in protecting the artists they represent, or if they turn their backs to the artists when a conflict arises.

In order to overcome some of the issues presented, or at least minimise risks of disputes against record labels, many artists and producers opted for hiring studio musicians who would record specific passages of a song or reproduce the sounds and lyrics themselves. This way of sampling is commonly known as interpolation or replayed samples, and differ from the mosts common "direct" samples in the sense that the artist is not using the sound recording of the song but only the underlying composition. In the sampling clearance process, the artist would only need to obtain a permission regarding the use of the composition copyright. This also had financial implications, given that the sound recording right is usually much more expensive than the composition right (Sewell, 2014).

2.6 Record Labels as Safeguards

As stated by Day (2011), and in defence of record labels, these infrastructures have the ability to effectively enforce intellectual property rights. Without record labels, the artists would have to do this individually. Apart from the high financial burden of enforcing their intellectual property rights, there is also a high cost associated with infringement lawsuits, which most artists do not have the means to overcome. In this sense, the affiliation with a record label might be the key for artists to secure their protection against their work and possible disputes. This, however, emphasises protection on an artist's own work.

Regarding samplers, and in response to the lack of standardisation of the sampling procedures and their legal implications, after the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* some record labels developed company-wide regulations with the purpose of operating coherently and according to fixed guidelines. Such regulations included the creation of a new department within the company with the sole purpose of clearing samples contained in songs of their catalogue.

Others opted for more merciless rules such as the option for labels to regard songs as “unsatisfactory” due to, for example, the presence of unlicensed samples, and refusing to publish them. In some contracts, it was even stated that artists needed to seek clearance for samples used themselves, provide versions of the song concerned without the samples, and guarantee that they were not infringing any other copyright within their work. Failure to follow these procedures would give the record label the right to terminate the contract and request the advance they gave to the artists back (Reilly, 2008). Such norms caused labels to step away from the responsibility of possible complications regarding unlicensed sample use.

Moreover, record labels had the power to determine which artists could or could not be sampled by their artists. This was the case with record label Tommy Boy, for example, who gave their band De La Soul a list with the names of the artists they could not sample, following a costly lawsuit in the 1980's. Such lists included artists who always refused requests for licensing or artists who demanded an excessively high fee to do so (Sewell, 2014).

Many artists and producers also relied on the power of networking to avoid high fees and conflicts with other record labels. They did so by working closely and establishing strong ties with other artists and their record labels. Ultimately, this would lead to their ability of sampling such artists with no negative consequences and at a lower fee (Sewell, 2014).

Szymanski (1996) put emphasis on the reluctance of record labels to move forward with copyright infringement lawsuits due to digital sampling. Firstly, the author pointed to the fact that many artists sampled records from artists signed to the same record label as them, such that the publishing division of the label had no incentive to engage in conflicts with other divisions. Secondly, the author recognised the reciprocity aspect towards major labels letting

their song be sampled. Record labels recognised the likelihood of their artists wanting to sample other label's artists in the future, in such a way that engaging in a conflict with that label could result in a "vicious circle of suits and countersuits" (Szymanski, 1996) which was not beneficial or economically viable for any of the parties.

However, such incentives not to engage in conflict and "opportunistic behaviour" by record labels could, be minimised when the other party was a record label that is smaller and less established, or when the labels feel like it is unlikely that the label will have any means or reasons to fight back. This can be related to the cases of Bridgeport and Tuff Music, who were not really producing content anymore but whose catalogues consisted of old, and frequently sampled songs, providing the record labels with great incentives to sue artists who sampled their songs.

2.7 Copyright Law and its Implications on Freedom to Create

Handke (2013) conducted research that goes beyond the legal approach to copyright, by surveying quantitative-empirical research that has been reported in English and which aims to directly relate copyright and indicators for economic welfare. With regards to the relation between copyright protection and the supply of creative works, the author points out to the "surprising" little empirical research on the subject, proposing that this might be due to the the lack of convincing data indicating the quality of creative works.

On their chapter on *Cultural Economics and the Internet*, Towse et al. (2016) investigate what has changed with regards to the production and consumption of creative works due to the Internet. Digitalisation is argued to alter the structure of the creative industry due to the facilitation of distribution of creative works and information. As a consequence, digitalisation has however facilitated unauthorised copying, and has made it much easier to circumvent copyright laws. However, the authors point out that, so far, there is an inexistence of answers as to what extent copyright is an economic incentive to authors and publishers in the creative industries.

Regarding sampling, Volgsten (2013) stressed the implications for culture and self-expression of artists constrained by copyright policies, which causes music to become "subject to the private rights of multinational corporations and media conglomerates". Volgsten (2013) accentuates the predominance of independent freelancers in the music industry, which are in disadvantage since copyright law serves the corporate media much better than it serves them. Thus, the author posits that today's composer has less availability of musical material and an increased anxiety which leads to the avoidance of using samples in order not to face copyright implications. These negative implications are translated by what the author calls a "counterproductive cautiousness" in the creative process.

Sewell (2014) conducted a research on how copyright affected the musical style and critical reception of sample-based Hip-Hop. To do so, the author developed a typology to classify the different sampling styles and then investigated how the use of each type of sample had changed, after 1991, for the bands Beastie Boys, De La Soul, Public Enemy, Salt 'N' Pepa and A Tribe Called Quest. All these bands were established in the industry and had commercial success with at least one platinum album.

The author made a distinction between three types of samples. Firstly, structural samples refer to portions songs that are incorporated into others as they are and looped throughout a track, compromising both the sound recording and the composition copyright. Secondly, surface samples make one-off appearances in a track. Thirdly, lyric samples are spoken or sung by the artist and therefore compromise only the composition copyright (Sewell, 2014).

The author concluded that, even though artists continued to loop samples, the source of the materials sampled changed significantly. Instead of looping what the author referred to as aggregate structural samples, which combined various elements from different songs such as musical instruments, the authors began using only one track to sample from. Moreover, the artists' albums contained considerably less surface samples, which were very rarely included after 1991, the year of the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling.

In contrast, lyric samples grew significantly in use following 1991. The majority of the lyric samples used were taken from recordings of the same genre, as the author recognises an unspoken rule between artists of not suing each other over sampled lyrics. Moreover, and interestingly, the four bands of the research turned to sampling their own previous tracks, which represented the ultimate risk-averse move in the industry (Sewell, 2014).

The present paper seeks to expand these conclusions, derived from 4 of the most established bands in the industry regarding the Hip-Hop genre, to a wider range of Hip-Hop, Rap and R&B artists and record labels, in order to check whether this trend holds and was, therefore, an industry-wide phenomenon.

2.8. Hypotheses

Following the literature discussed during this section, this research paper has the aim of testing three hypotheses related to the impact of the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* court decision.

The first hypothesis is related to the role of record labels, especially more powerful and established ones, to act as safeguards and protect artists, as well as with the artist shift from independent to major record labels documented by the literature. It is expected that an

increase in bureaucracy regarding the use of samples might work as an incentive for artist to seek support and affiliation with Major record labels, which leads to H1:

H₁: The *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling has caused an increase on the share of songs affiliated with Major record labels featured on the Hot 50 Hip-Hop, Rap and R&B Billboard Charts.

Secondly, a great deal of literature has put emphasis on artists' reluctance of using samples following Biz Markie's adverse court decision, due to the fear of getting sued and engaging in disputes with other artists and record labels. Consequently, H2 predicts that the total number of samples in Hip-Hop, Rap and R&B songs decreases after December 1991, the date of the ruling:

H₂: The *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling has caused a significant decrease of the number of samples used by artists on songs featured on the Hot 50 Hip-Hop, Rap and R&B Billboard Charts.

Finally, the third hypothesis of this research concerns a possible change in the nature of samples due to increased likelihood of infringement. As stated in section 2.4, many authors claim that, as a result of the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.*, many artists started to work around the rules by, for example, opting to use live musicians or reproducing the sounds and lyrics themselves, instead of using the sound recording. By doing so, the artists are avoiding paying for the sound recording right of the song they are sampling and are therefore saving resources related to license fees and possible disputes.

It is therefore expected that this form of sampling has increased in popularity after the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* court decision. This leads to the third, and final, hypothesis of this research:

H₃: The *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling has caused a significant change on the nature of samples used by artists, causing an increase on the percentage of replayed samples on songs featured on the Hot 50 Hip-Hop, Rap and R&B Billboard Charts.

3. Data

3.1. Sampling:

The sampling frame of this research ranges between 1990 and 1993. These parameters are established around the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling, which took place on December 17, 1991. The data ranges from the two years prior to the ruling until two years after the ruling, with the purpose of capturing the ongoing trend prior to the intervention and any possible changes to it as a result of the ruling.

The research population is comprised of the songs that featured the weekly Billboard Hot 50 Hip-Hop and R&B charts between 1990 and 1993. Between these 4 years, a sample of 16 Billboard Hot Hip-Hop, Rap and R&B charts was studied and analysed, 4 charts each year. The rationale behind this was to collect data on a trimestral basis, and around the same time every year, allowing to capture the different seasons and new entries to the charts.

Therefore, the data for this research is based primarily on the charts for weeks 12 (March), 25 (June), 38 (September) and 51 (December), between 1990 and 1993. The midpoint of this time frame is the 51st week of 1991, which coincides with the week of the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* court decision.

3.2. Data Collection:

The data for this research was collected through two main sources. The first source was Billboard's Hot Hip-Hop, Rap and R&B chart. This chart was released by Billboard Magazine on a weekly basis and is a combination of Radio Airplay, Sales Data and Streaming Data in the United States. The decision to use the Hot Hip-Hop, Rap and R&B chart in opposition to the standard Hot 100 lies on the fact that the songs of the aforementioned genres chart first on the specialised chart (Lena, 2006) and, prior to 1990 there were no signs of the genres on the Hot 100 charts (Myer et al., 2007).

In order to access such charts, a premium membership was acquired. While usually Billboard charts present the Top 100 songs for a specific week or period, at the time of the data collection, only the Top 50 songs were available to consult. The charts include information on the chart position of each song, title of the song, its chart position in the previous two weeks, its peak position, artist, songwriters, producers, imprint/ promotion label and weeks on chart. Any certification from the Recording Industry Association of America (RIAA) is also reported.

The second source for data collection was the user-generated website WhoSampled.com. This website provides information on the direct connections between songs, regarding sampled music, sample-based music, covers and remixes. Even though the

website is open for contributions from its users, every addition to the website is subject to approval by *WhoSampled's* moderators before being added to the database.

The 800 song entries from the Billboard charts analysed were searched for individually on *WhoSampled* in order to determine whether they contained samples and, if so, how many. Moreover, the website gives information on whether a sample is a direct sample or a replayed sample. While direct samples represent portions of songs taken from other recordings as they are, replayed samples, also known as interpolations, do not use a portion of the actual sound recording but still reproduce it somehow, through methods such as live musicians or sung lyrics. This distinction is important for the present research given that direct samples require both the sound recording and composition rights, while replayed samples only need to obtain the composition right in the clearance process.

The information regarding cover songs was also stored and analysed, given that such songs also have to face a process of obtaining permissions to be released. An example is the acquisition of a mechanical license, traceable back to the Copyright Act of 1909, which is a mandatory requirement for an artist to cover another's song (Rosenlund, 1978).

Appendix A provides an overview of the information collected through the selected Hot 50 Hip-Hop, Rap and R&B Billboard Charts as well as information on samples collected through *WhoSampled*.

3.3 Classification of Different Record Labels:

Before proceeding to explain how the data from Billboard was studied and classified, a brief introduction to how the information appears on the website must be given. Figure 3.1 shows how a song entry appears on the Billboard Chart webpage.

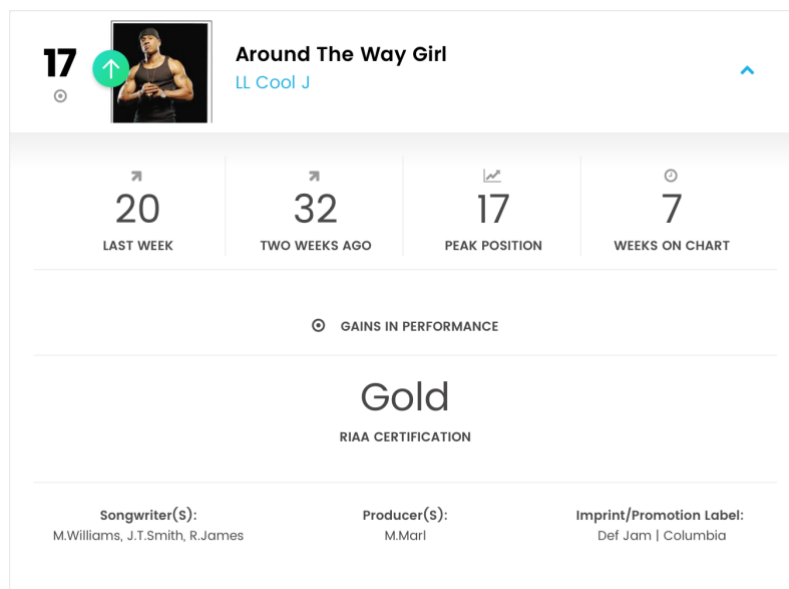


Figure 3.1: Song Entry for a Billboard Chart

The main variable of focus in this section is the Imprint/ Promotion Label. As is visible on Figure 3.1 with 'Def Jam | Columbia', it is common that two or more record labels take the credits for a song due to factors such as a distribution deal or a joint venture partnership. These relationships between record labels received substantial attention in this research and motivated the analysis on major and independent label dominance in the charts. They will be referred to as 'interactions between record labels' during this paper.

The different hierarchies and interactions between record labels presented on section 2.1 of this research were the basis for a further categorisation of the record labels, or interactions between record labels that appeared on the Billboard charts, which had the purpose of measuring the degree of integration of a specific record label with the 'major record label system'. Thus, the categorisation of labels ranged between 5 types, being:

1. "Big Six" Record Label
2. Subsidiary Label/ Imprint
3. Artist-Imprint Label (Joint Ventures or Production Deals)
4. Distribution Deal
5. Independent Record Label

Below are presented the criteria used for classifying each record label of the dataset in a certain way. The categorisation of record labels into different groups can be subject to individual judgements. The purpose of this criteria is to establish guidelines in such a way that anyone conducting similar research would arrive at the same record label classification as this research did.

The starting point for classifying record labels will be determining the "Big Six", record labels which dominated the major label system during the time period that the present research covers, as stated in section 2.1. Hence, the first rule for classifying record labels will be that:

- a. *Sony, Warner, PolyGram, EMI, BMG and MCA will be automatically classified as "Big Six".*

As stated previously, each of these "Big Six" record labels runs a number of in-house and imprint labels under their umbrella. Therefore, the second type of record refers to "Subsidiary" labels that were, at least, half-owned by a "Big Six" record label. This includes any record label that was founded as independent but was posteriorly acquired by a "Big Six" label by the time of the study period, as well as record labels founded already within their umbrella.

- b. *“Subsidiary” record labels are labels that were, at least, 50% owned by a major label at the time of the study.*

Many of these subsidiaries also run their own subsidiary labels. Given their involvement and dependence on the major record labels, these are also classified as “Subsidiary” labels.

- c. *Any record label which is a subsidiary of a record label owned by a “Big Six” label, is also classified as “Subsidiary”.*

Next, Artist-Imprint Labels refer to joint ventures or production deals. In these cases if there is literature specifically stating that a record label was founded as, or engaged in a joint venture/ production deal between an artist and a “Big Six” (or subsidiary) label, they will be classified as “Artist-Imprint”. These labels are usually presented on Billboard as *“Artist-Imprint | Big Six (or Subsidiary)”*, such as *“Paisley Park | Warner Bros”*.

- d. *A label will be classified as “Artist-Imprint” if there is literature stating that it was founded as, or engaged in a joint venture/ production deal between an artist and a “Big Six” (or Subsidiary) record label.*

Regarding independent and major label interactions, the fourth category is dedicated to Distribution Deals. Such relationships between labels are presented on the Billboard Charts as *“Independent | Big Six (or Subsidiary)”*, such as *“Delicious Vinyl | Atlantic”*, and are complemented by the information that the two labels engaged in a distribution deal.

- e. *If an independent and a “Big Six” or Subsidiary label appear together, and there is the information that they had a distribution deal, they will be classified as “Distribution Deal”.*

The classification given to label relationships are in accordance to how they are presented on Billboard. Taking the example of the independent label “Luke”, there is information on how the label had a distribution deal with Atlantic Records, subsidiary of the “Big Six” record label Warner Bros., during the study period. However, while some of the songs of the Billboard Charts are accredited to “Luke | Atlantic”, others only refer “Luke”.

Even if independent record labels engage in distribution deals with majors, this does not necessarily imply that all the independent’s records are contemplated in this deal. An LA

Times article dated from June 1990 investigates exactly the deal between Luke Campbell's independent label and Atlantic Records. Doug Morris, president of Atlantic at the time said that the label "is not bound to distribute everything" from Luke Records, and some records may be "too rough" for Atlantic, which leads the major to look at the material on a record by record basis (Philips & Goldstein, 1990).

For these reasons, if a song is accredited to only "Luke" it will be classified as "Independent", while if it appears as "Luke | Atlantic" it will be classified as "Distribution Deal". More generally:

- f. Provided that there is information on a distribution deal between an independent label and a major label (including their subsidiaries and imprints), if the independent label appears isolated ("Independent"), it is classified as a "Type 5" label. If the independent and the major appear together ("Independent | Big Six/Subsidiary/Artist-Imprint"), it is classified as a "Distribution Deal".*

Regarding Independent labels, these are record labels which operate autonomously, do not appear linked to any "Big Six", Subsidiary or Artist-Imprint record label and there is no information of ownership by a major label. Usually, it is stated in the data that they are independent.

- g. A label is classified as "Independent" label if it appears individually on the Billboard Charts, and if it is not dependent or connected to any "Big Six", "Subsidiary" or "Artist-Imprint" record label, or there is information that it operates independently.*

While it is known and common that independent labels rely on major labels to distribute their records, some opt to contract with other outside independent firms for distribution purposes. Since both labels are independent and not affiliated with the major label system, they will be classified as "Independent":

- h. If an independent record label has a distribution deal with another independent record label ("Independent | Independent"), this will be classified as 'Independent' and not "Distribution Deal".*

In the uncommon event where two or more record labels appear together, with no apparent relationship between them, and if their chart frequency is of less than 3, the most probable reason is that such relationship is song-specific. This might happen, for example, for

songs of non-US artists, who are signed to, or distributed by different record labels in different areas. Each case should be dealt with individually.

- i. *If two or more record labels appear together, with no apparent relationship between them, and with a chart frequency of less than 3. The songs to which they refer should be searched for individually in order to understand the most appropriate classification.*

Table 3.1 presents all the rules presented and explained previously in table-form.

Table 3.1.: List of Criteria for Label Classification in Alphabetical Order

Criteria:	Description:
<i>a</i>	<i>Sony, Warner, PolyGram, EMI, BMG and MCA will be automatically classified as “Big Six”.</i>
<i>b</i>	<i>“Subsidiary” record labels are labels that were, at least, 50% owned by a major label at the time of the study.</i>
<i>c</i>	<i>Any record label which is a subsidiary of a record label owned by a “Big Six” label, is also classified as “Subsidiary”.</i>
<i>d</i>	<i>A label will be classified as “Artist-Imprint” if there is literature stating that it was founded as, or engaged in a joint venture/ production deal between an artist and a “Big Six” (or Subsidiary) record label.</i>
<i>e</i>	<i>If an independent and a “Big Six” or Subsidiary label appear together, and there is the information that they had a distribution deal, they will be classified as “Distribution Deal”.</i>
<i>f</i>	<i>Provided that there is information on a distribution deal between an independent label and a major label (including their subsidiaries and imprints), if the independent label appears isolated (“Independent”), it is classified as a “Type 5” label. If the independent and the major appear together (“Independent Big Six/Subsidiary/Artist-Imprint”), it is classified as a “Distribution Deal”.</i>
<i>g</i>	<i>A label is classified as “Independent” label if it appears individually on the Billboard Charts, and if it is not dependent or connected to any “Big Six”, “Subsidiary” or “Artist-Imprint” record label, or there is information that it operates independently.</i>

<i>h</i>	<i>If an independent record label has a distribution deal with another independent record label (“Independent Independent”), this will be classified as ‘Independent’ and not “Distribution Deal”.</i>
<i>i</i>	<i>If two or more record labels appear together, with no apparent relationship between them, and with a chart frequency of less than 3. The songs to which they refer should be searched for individually in order to understand the most appropriate classification.</i>

Table 3.2 gives an example of how each criterion was put into practice, the full version for every label or combination of labels of the dataset can be found in Appendix B. This information was compiled through various sources, mainly Billboard Magazine, Discogs, RateYourMusic, Wikipedia and artists and record labels’ own websites. All information collected from Wikipedia was double-checked against any of the other sources.

The column ‘Frequency’ refers to the number of times that record label, or interaction between record labels, appears on the charts, out of 800 (the total number of song entries analysed). The column ‘Criteria’ addresses the letter of the criteria applied, each criterion and assigned letter is described in Table 3.1. The column ‘Type’ shows the classification attributed to the Label according to the criteria applied. Finally, the column ‘Details’ provides any label-specific additional information that justifies the Criteria applied and Type choice.

Table 3.2: Example of Record Label Classification for each Criteria

Labels	Frequency	Criteria	Type	Details
EMI	11	a	“Big Six”	EMI was one of the six major labels of the study period.
Motown	44	b	Subsidiary	Motown Records was independent until 1988, when it was sold to the major MCA Records.
Vendetta A&M	1	c	Subsidiary	Vendetta Records was a short-lived subsidiary of A&M records. A&M records were part of the “Big Six” PolyGram.

LaFace Arista	13	d	Artist-Imprint	In 1989, Arista entered into a joint venture with Antonio "L.A." Reid and Babyface in the creation of LaFace Records.
Select EEG	1	e	Distribution Deal	Select Records had a distribution deal with Elektra Records between 1990 and 1995.
Zoo	1	f	Independent	Zoo Records was a British independent record label founded in 1978 by Bill Drummond and David Balfe.
Luke	5	g	Independent	Luke Records was an independent label owned by Luke Campbell. It was distributed by Atlantic Records from 1990 to 1993.
Crew La Poo Luke	1	h	Independent	Crew La Poo was a short-lived Hip-Hop oriented label founded by Larry Blackmon of Cameo in conjunction with Luther "Luke" Campbell. Luke Records was also an independent label owned by Luke Campbell.
Gee Street/LaFace Arista	1	i	Subsidiary	The interaction between these 3 labels is only traced back to the song "I'd Die Without You" by P.M. Dawn. The artist was signed to Gee Street Records and this song integrated the soundtrack for the movie "Boomerang", which was released through LaFace Records.

There were two main inconsistencies with data found in the Billboard charts analysed. The first one refers to the attribution of some songs to the label IDJMG. IDJMG stands for Island and Def Jam Music Group, which combined the operation of several record labels, including Island Records, Def Jam Records and Mercury Records. Apart from Def Jam, which was still independent, these were all labels owned by PolyGram at the time of the study, however, this conglomerate was only founded in 1998.

This conglomerate features in the Billboard charts in two ways: some songs are attributed only to "IDJMG", while others are attributed to IDJMG and some other label, such as "Delicious Vinyl | IDJMG" or "Mercury | IDJMG". An email was sent to Billboard in order to obtain a clarification regarding the appearance of IDJMG on their charts prior to 1998, without an answer.

After searching for the concerned songs individually on other platforms, such as WhoSampled, Genius or Discogs, none of them include IDJMG but instead attributed those songs to a label that integrated the conglomerate after it was formed, such as Mercury or Island Records. In order not to contradict the data provided from Billboard, entries of the style “... | IDJMG” remained the same, while the three songs that were attributed to IDJMG only were searched for individually in other platforms, and after discovering that they were associated with Mercury Records, Delicious Vinyl Records and Wing Records, they were renamed as “Mercury | IDJMG”, “Delicious Vinyl | IDJMG” and “Wing | IDJMG” for coherence purposes. IDJMG was treated as PolyGram-owned.

Similarly to the previously presented situation, the second issue with the data referred to one song of the dataset which was associated with UMe. UMe stands for Universal Music Enterprises and is the catalogue division of Universal Music Group, only founded in 1999. This is also traced back to PolyGram-owned labels.

3.4 Operationalisation of Concepts Into Variables:

Label Data:

After assigning each label into a label type, in accordance to the criteria specified in the section above, the data in the sample was rearranged in order to reflect the number of songs per chart that were affiliated with the different types of record label. The five types discussed above were appropriated into the five variables *BigSix*, *Subsidiary*, *ArtistImprint*, *DistDeal*, and *Indie*.

After defining these five variables, a further classification was made, this time assigning each of the previous types to the major or independent label system. To do so, two other variables, were added to the research, which express different combinations of record label types.

Firstly, the variable *Major* refers to a narrower definition of what the Major-Label system encompasses, and is represented a sum of the “Big Six”, subsidiary and artist-imprint record labels. The rationale behind this is, as mentioned before, the degree of involvement of such labels with the major label system.

Subsidiary record labels are wholly or at least half-owned by a “Big Six” record label, and while they operate under a different name, any dissociation between the two would be flawed, as their operation is intrinsically dependent on the parent label’s resources and guidelines.

Regarding Artist-Imprint record labels, and while the artists involved have to some extent freedom in choosing who they sign to their label, given the involvement and resources

invested by the major label in joint ventures and production deals, artist-imprints depend on the major's funding and service to survive and therefore fall under their umbrella. Under this narrower classification, distribution deals fall outside the scope of the major labels due to the fact that the independent label is simply requesting a service from the major, which has no implications on the ownership of both labels involved.

A second alternative combination of record labels that fall within the major-label umbrella is translated by the variable *Major2*, which refers to a wider definition of what the Major-Label system encompasses. It is operationalised by adding distribution deals to the "Big Six", subsidiary and artist-imprint record labels. The reason for including such deals within the scope of the major label operations is backed up by the information on distribution deals provided in section 2.1 of this research, which draws attention to the fact that, even though independent labels remain their individual identity, major labels look at them as part of their overall portfolio of record labels, benefit from their increased publicity and often look at a distribution deal as a first step towards partially or wholly acquiring the independent record label.

Under the narrower definition of major record labels, distribution deals (*DistDeal*) and independent record labels (*Indie*) fall within the independent-record label system, whereas under the wider definition of major record labels, only the independent (*Indie*) labels encompass the independent-record label system. This distinction will allow for further analysis of the share of songs affiliated with major and independent record labels on Billboard Charts and any possible changes to it.

Samples Data:

Several variables were created in order to reflect the data collected through WhoSampled. First and foremost, the total number of samples per point in time was stored as the variable *Samples*. In order to fight the fluctuation of the *Samples* variable, the variable "Songs With Samples" (*SongsWSamples*) was created in order to reflect the number of songs in a chart that are sample-based as opposed to the total number of samples. A *Covers* variable was created which measured the number of songs in each chart that were covers of other songs.

Regarding the inexistence of samples in a song, a distinction was made in order to differentiate songs that had information about the number of samples it contained, which was zero, and songs which had no information regarding samples available. This information was missing not only on *WhoSampled*, which provided the most complete database of sampled-based songs, but was not found on any other source either.

Finally, the variable *Replayed* accounts for the nature of the samples used in the chart songs by giving information on the percentage of total samples in a chart that are replayed as opposed to direct samples. This distinction was explained in section 3.2.

Once all the variables were defined and the data was prepared, the data was then analysed using statistical software Stata, as well as Excel. Table 3.3 provides an overview of the variables used in the data analysis along with their operationalisation and source.

Table 3.3. Variable description for all variables used in the research

Variable	Abbreviated Name	Description	Operationalisation	Source
Label Types				
Big Six	<i>BigSix</i>	Total number of songs per chart affiliated with the Big Six Record Labels	Determined by counting the number of songs per chart which were associated with a "Big Six" record label, according to the criteria presented	Author's Construction, Billboard
Subsidiary	<i>Subsidiary</i>	Total number of songs per chart affiliated with Subsidiary Record Labels	Determined by counting the number of songs per chart which were associated with a Subsidiary record label, according to the criteria presented	Author's Construction, Billboard
Artist-Imprint	<i>ArtistImprint</i>	Total number of songs per chart affiliated with Artist-Imprint Record Labels	Determined by counting the number of songs per chart which were associated with an Artist-Imprint record label, according to the criteria presented	Author's Construction, Billboard
Distribution Deal	<i>DistDeal</i>	Total number of songs per chart affiliated with a Distribution Deal	Determined by counting the number of songs per chart which were associated with a Distribution Deal between an independent and a major record label, according to the criteria presented	Author's Construction, Billboard
Independent	<i>Indie</i>	Total number of songs per chart affiliated with Independent Record Labels	Determined by counting the number of songs per chart which were associated with an Independent record label, according to the criteria presented	Author's Construction, Billboard
Combinations of Types of Record Label				
Major Labels Narrowly Defined	<i>Major</i>	Sum of Big Six, Subsidiary and Artist-Imprint Labels	Determined by computing the aggregate sum of the values for <i>BigSix</i> , <i>Subsidiary</i> and <i>ArtistImprint</i> per chart	Author's Construction, Billboard
Major Labels Widely Defined	<i>Major2</i>	Sum of Big Six, Subsidiary, Artist-Imprint Labels and Distribution Deals	Determined by computing the aggregate sum of the values for <i>BigSix</i> , <i>Subsidiary</i> , <i>ArtistImprint</i> and <i>DistDeal</i> per chart	Author's Construction, Billboard
Sample Analysis				
Samples	<i>Samples</i>	Total number of samples per chart	Calculated by computing the aggregate sum of the number of samples of each songs in a specific chart	WhoSampled
Songs With Samples	<i>SongsWSamples</i>	Number of songs per charts that have at least one sample	Determined by looking at the number of songs per chart which have, at least, one sample	WhoSampled
Zero Samples	<i>ZeroSamples</i>	Number of songs per chart that do not contain any sample	Determined by looking at the number of songs per chart which have, at least, one sample	WhoSampled
Covers	<i>Covers</i>	Number of songs per chart that are covers of other songs	Determined by looking at the number of songs per chart which were covers of other songs	WhoSampled
No Information	<i>NoInfo</i>	Number of songs per chart with no information regarding samples	Determined by looking at the number of songs per chart which had no information available regarding samples	WhoSampled
Replayed Samples	<i>Replayed</i>	Percentage of total samples that are replayed	Calculated by dividing the number of replayed samples by the total number of samples of a specific chart	WhoSampled

3.5 Descriptive Statistics:

The sample of this study consisted of 16 Billboard charts of 50 songs each, which yields a total of 800 song entries. The songs of the sample were traced back to 116 different record labels/ interactions between record labels. Out of these 116, 3 record labels were “Big Six” labels, 40 were subsidiaries, 18 were Artist-Imprints, 33 were distribution deals and 22 were independent record labels.

This means that, if adopting the narrow definition of what the major record label system encompasses, there were 61 major-affiliated record labels and 55 independent-affiliated record labels, an almost equal split. If adopting the wider definition of what the major record label system encompasses, there were 94 major-affiliated record labels and 22 independent-affiliated record label, which means that 81% of the total record labels/ interactions between record labels of the sample fell within the major label umbrella.

Table 3.4 provides the actual data per point in time for every variable, and is complementary to Table 3.5, to which a main focus will be given, as it presents the descriptive statistics for the first and second halves of the study period, as well as for the full time-frame of the research. The pre-period consists on the first 8 data points in time, represented by the charts for y90w12, y90w25, y90w38, y90w51, y91w12, y91w25, y91w38 and y91w51. The post-period consists on the remaining 8 data points in time, which represent the charts for y92w12, y92w25, y92w38, y92w51, y93w12, y93w25, y93w38 and y93w51. The whole period includes all 16 charts.

Regarding the share of record labels in the Billboard Charts, there is a clear increase on the average share of record labels in the charts that are Artist-Imprint labels, between the pre and the post periods. *Indie* labels have also strengthened their presence on the charts. All the remaining types of record labels decreased their average presence in the charts during the post-period. Nonetheless, both before and after the intervention, subsidiary record labels held the largest share of songs in the charts.

Regarding Sample descriptives, and contrary to what expected, the average total number of samples of charted songs (*Samples*) has increased from 48.25 to 63.375. These values, however, fluctuate considerably, as seen by the high standard deviation of the variable, due to the fact that songs of the sample could have as little as zero samples and as much as 15.

The variable *SongsWSamples* accounts for this fluctuation by, instead of accounting for the total number of samples, counting the number of songs which contain samples. There is still an average increase of around 7 sample-based songs per chart between the pre and post-periods.

It is also relevant to point out that, increasingly, over time, information regarding samples became more and more available, in such a way that the more recent charts, after the benchmark of the 51st week of 1991, have much less missing data points than the first ones. On average, and out of 50 songs, 15.75 songs had no available information regarding samples, a number which dropped to 11.375 in the period after the intervention. This might explain to some extent the increase in the number of samples and sample-based songs between the period prior to the intervention and the period after, which might be justified simply by an increase in available information. However, this is a mere speculation which cannot be confirmed.

Concerning covers, and out of 50, there were throughout the whole period a consistent average of 3 per chart. Finally, regarding the percentage of total samples that are replayed, this has increased from around 18.8% in the pre-period to around 25.6% in the post-period, with charts reaching as much as 34.9% of samples that were replayed. This is consistent with the third hypothesis for this research, and the significance of this increase will be further investigated in the data analysis section of the paper.

Table 3.4. Data per point in time for all Variables of the Dataset

Chart	BigSix	Subsidiary	ArtistImprint	DistDeal	Indie	Major	Major2	Samples	SongsWSamples	ZeroSamples	Covers	NoInfo	Replayed
y90w12	7	30	1	9	3	38	47	33	15	13	2	20	0,242424
y90w25	6	30	2	10	2	38	48	41	14	17	6	13	0,097561
y90w38	9	28	4	7	2	41	48	53	14	10	2	24	0,188679
y90w51	5	32	3	9	1	40	49	61	20	15	3	12	0,098361
y91w12	10	27	4	7	2	41	48	42	14	20	1	15	0,238095
y91w25	7	29	7	5	2	43	48	46	14	18	5	13	0,195652
y91w38	4	30	8	5	3	42	47	59	14	15	6	15	0,169492
y91w51	7	27	3	10	3	37	47	51	18	16	2	14	0,27451
y92w12	3	31	7	7	2	41	48	60	17	14	1	18	0,2
y92w25	5	31	6	5	3	42	47	52	18	12	4	16	0,326923
y92w38	4	18	12	8	8	34	42	65	21	15	2	12	0,230769
y92w51	7	23	10	6	4	40	46	49	23	16	4	7	0,229167
y93w12	3	29	7	6	5	39	45	73	24	14	4	8	0,178082
y93w25	2	21	6	13	8	29	42	65	23	17	2	8	0,261538
y93w38	3	24	11	6	6	38	44	80	26	7	2	15	0,275
y93w51	4	21	10	7	8	35	42	63	23	18	2	7	0,349206

Table 3.5. Univariate Descriptive Statistics for all Variables of the Dataset

Abbreviated Name	Obs	Mean	St. Dev	Min	Max	Median	Mode
Pre-Period							
<i>BigSix</i>	8	6.875	1.95941	4	10	7	7
<i>Subsidiary</i>	8	29.125	1.726888	27	32	29.5	30
<i>ArtistImprint</i>	8	4	2.390457	1	8	3.5	4
<i>DistDeal</i>	8	7.75	2.052873	5	10	8	9
<i>Indie</i>	8	2.25	.7071068	1	3	2	2
<i>Major</i>	8	40	2.13809	37	43	40.5	38
<i>Major2</i>	8	47.75	.707106781	47	49	48	48
<i>Samples</i>	8	48.25	9.543135	33	61	48.5	#N/A
<i>SongsWSamples</i>	8	15.375	2.326094	14	20	14	14
<i>ZeroSamples</i>	8	15.5	3.070598	10	20	15.5	15
<i>Covers</i>	8	3.375	1.995531	1	6	2,5	2
<i>NoInfo</i>	8	15.75	4.131759	12	24	14.5	13
<i>Replayed</i>	8	.1880967	.0649961	.097561	.2745098	.1921657	#N/A
Post-Period							
<i>BigSix</i>	8	3.875	1.552648	2	7	3.5	3
<i>Subsidiary</i>	8	24.75	4.978525	18	31	23.5	31
<i>ArtistImprint</i>	8	8.625	2.386719	6	12	8.5	7
<i>DistDeal</i>	8	7.25	2.492847	5	13	6.5	6
<i>Indie</i>	8	5.5	2.390457	2	8	5.5	8
<i>Major</i>	8	37.25	4.334249	29	42	38.5	#N/A
<i>Major2</i>	8	44.5	2.390457	42	48	44.5	42
<i>Samples</i>	8	63.375	10.15505	49	80	64	65
<i>SongsWSamples</i>	8	21.875	3.044316	17	26	23	23
<i>ZeroSamples</i>	8	14.125	3.440826	7	18	14.5	14
<i>Covers</i>	8	2.625	1.187735	1	4	2	2
<i>NoInfo</i>	8	11.375	4.470139	7	18	10	7
<i>Replayed</i>	8	.2563357	.0593682	.1780822	.3492063	0,246154	#N/A
Whole Period							
<i>BigSix</i>	16	5.375	2.30579	2	10	5	7
<i>Subsidiary</i>	16	26.9375	4.25	18	32	28.5	30
<i>ArtistImprint</i>	16	6.3125	3.321019	1	12	6.5	7
<i>DistDeal</i>	16	7.5	2.221111	5	13	7	7
<i>Indie</i>	16	3.875	2.390955	1	8	3	2
<i>Major</i>	16	38.625	3.593976	29	43	39.5	38
<i>Major2</i>	16	46.125	2.390955	42	49	47	48
<i>Samples</i>	16	55.8125	12.31378	33	80	56	65
<i>SongsWSamples</i>	16	18.625	4.256368	14	26	18	14
<i>ZeroSamples</i>	16	14.8125	3.229422	7	20	15	15
<i>Covers</i>	16	3	1.632993	1	6	2	2
<i>NoInfo</i>	16	13.5625	4.732424	7	24	13.5	15
<i>Replayed</i>	16	.2222162	.0696992	.097561	.3492063	.2299679	#N/A

4. Results

4.1. Research Design

The choice of using quantitative methods to analyse this data lies on the fact that the data collected can be quantifiable and used in order to reveal general trends or patterns and investigate causal relationships between variables.

More specifically, an interrupted time-series analysis will be performed, which is a quasi-experimental design that allows the evaluation of an intervention effect using longitudinal data. This is done by studying a time series which has been “interrupted” by a treatment, which, in the case of this research was the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling. The effects of the intervention are judged by the changes in the level and slope of the time series and their statistical significance. The time-series will be divided into two segments. The pre-period ranges from the 12th week of 1990 (y90w12) until the 51st week of 1991 (y91w51). The post-period ranges from the 12th week of 1992 (y92w12) until the 51st week of 1993 (y93w51).

Due to its short length of longitudinal observations, the present analysis will not adopt more refined methods such as autoregression, moving average or integration. Instead, it will be based on simple models, such as the extrapolation of the trend of historical observations from the period before the intervention took place (pre-period) to forecast post-period values and compare them with the observed outcome.

In order to evaluate a possible change in trend or level between the pre-period and the post-period, several methods will be used, following the procedure adopted in Handke (2012) regarding the study of the consequences of unauthorised digital copying on the supply of new sound recordings. The first method analyses the time-series through differencing and the second stage consists of an intervention analysis of the regression residuals. Finally, a third method is used when a regression model for pre-period observations has a significant constant but not a significant coefficient for the independent variable, and consists of the transformation of the post-period values by deducting the pre-period constant.

The analysis seeks to test the three hypotheses presented at the end of section 2 of this research paper, which are now presented again.

H₁: The *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling has caused an increase on the share of songs affiliated with Major record labels featured on the Hot 50 Hip-Hop, Rap and R&B Billboard Charts.

H₂: The *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling has caused a significant decrease of the number of samples used by artists on songs featured on the Hot 50 Hip-Hop, Rap and R&B Billboard Charts.

H₃: The *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling has caused a significant change in the nature of samples used by artists, causing an increase in the percentage of replayed samples on songs featured on Hot 50 Hip-Hop, Rap and R&B Billboard Charts.

4.2 Interrupted Time-Series Results

4.2.1 Major Label Presence on the Hot 50 Hip-Hop, Rap & R&B Charts

The first analysis concerns the testing of H₁, which predicts an increase on the share of songs affiliated with major labels on the Hot 50 Hip-Hop, Rap and R&B Billboard Charts over time. This analysis will be run for both the narrow and wider definitions of what the major label system encompasses.

Figure 4.1 presents a time series for the number of songs affiliated with major labels (narrow definition) per chart. It contains 16 observations which represent the 16 points in time where data was collected, every 12 weeks starting from the 12th week of 1990. The pre-period and the post-period are separated from a dashed vertical line on the 51st week of 1991.

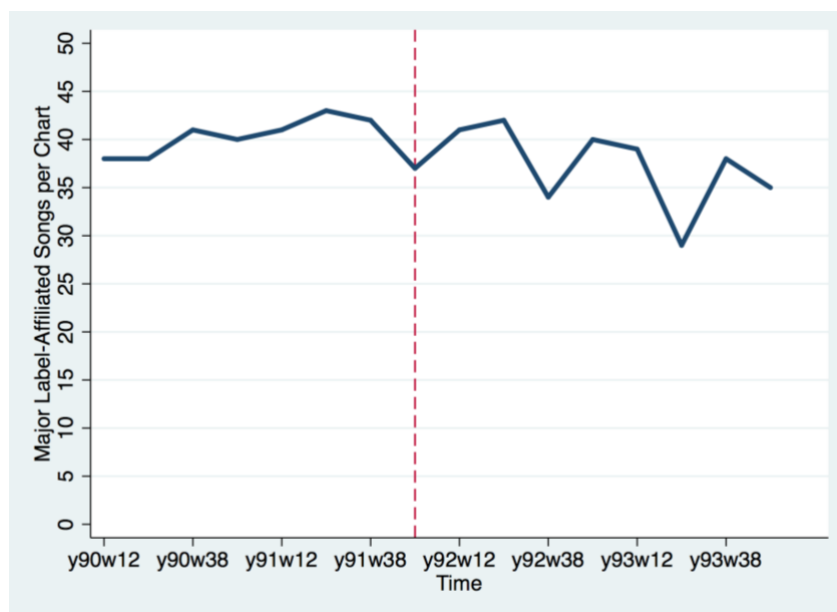


Figure 4.1: Number of Major Label-Affiliated Songs on Selected Charts between 1990 and 1993

A visual analysis of Figure 4.1 indicates a gradual decrease of major label presence over time, which is contrary to the expected trend of increased presence due to increased protection offered by major record labels to artists. It is, however, not clear whether there is a clear change on this downward trend as a result of the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* court decision.

Intervention analysis of differenced time series:

The first method applied analyses the effect of an intervention through differenced time series. The process of differencing refers to the transformation of a non-stationary time-series into a stationary one. By doing so, the time series will not have a trend and its statistical properties such as the mean and variance are constant. The first difference value is calculated by subtracting the previous time period value from the current time period value. This procedure is depicted on Table 4.1.

Table 4.1: First-Difference Calculation:

	Chart	Y Value	First Difference
Pre-period	y90w12	38	-
	y90w25	38	0
	y90w38	41	3
	y90w51	40	-1
	y91w12	41	1
	y91w25	43	2
	y91w38	42	-1
	y91w51	37	-5
	Post-period	y92w12	41
y92w25		42	1
y92w38		34	-8
y92w51		40	6
y93w12		39	-1
y93w25		29	-10
y93w38		38	9
y93w51		35	-3

After calculating the first differences, it is necessary to test whether the differencing has created a stationary variable for the pre-period, by regressing the first-difference values obtained over the pre-period. The details of such regression can be seen on Table 4.2.:

Table 4.2: Regression Analysis Summary For First Difference Values Over the Pre-Period

Variable	Beta	95% Confidence Interval	
		Lower Bound	Upper Bound
Time	-0.7142857 (.4356557)	-1.834174	.405603
Constant	3.428571 (2.346078)	-2.602214	9.459357
R ²	0.3497		
No. Of Observations	7		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001

As Table 4.2 shows, given the insignificance of both the coefficients for the trend and the constant, the first differencing method has successfully created a stationary time series and is therefore suitable for testing the hypothesis on whether this has changed between the pre and post periods. To do so, a regression on the differenced data for the post-period was run, as shown in table 4.3.

Table 4.3: Regression Analysis Summary For First Difference Values Over the Post-Period

Variable	Beta	95% Confidence Interval	
		Lower Bound	Upper Bound
Time	-0.2619048 (-0.24)	-2.952179	2.42837
Constant	3.02381 (0.22)	-31.16491	37.21253
R ²	0.0094		
No. Of Observations	8		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001

Once again, the insignificance of both coefficients means that there is no change between the pre and post-periods and the analysis does not reveal any significant evidence for an effect of the treatment.

Intervention analysis based on regression model residuals:

A second alternative for transforming data consists of, after running a regression on the pre-period, calculating residuals for the post-period. Any significant difference between the post-period residuals and values would indicate there is a change in trend before and after the intervention.

In order to understand the underlying trend of the share of major labels prior to the intervention, a regression model for the pre-period observations was estimated, which is shown in Table 4.4.

Table 4.4: Regression Analysis Summary For Major Label (Narrow Definition) Presence on the Billboard Charts Over the Pre-Period

Variable	Beta	95% Confidence Interval for	
		Lower Bound	Upper Bound
Time	.2380952 (.3428351)	-.600792	1.076982
Constant	38.92857**** (1.731232)	34.6924	43.16474
R ²	0.0744		
No. Of Observations	8		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001

The regression of the dependent variable Major over the pre-period yields no significant coefficient for the dependent variable, but a significant value for the constant at the 99.9% confidence level.

Moreover, the confidence interval (C.I.) indicates the range of values containing the population mean with 95% certainty. Nevertheless, the coefficient on time is statistically insignificant, as such, no meaningful inference can be drawn from the confidence interval.

The R-squared of the regression is also very low, indicating that the independent variable Major is not explaining much in the variation of the dependent variable. On top of that, the variable is insignificant which means that the results from the regression are inconclusive, and no meaningful interpretation can be drawn.

Nonetheless, an analysis of the regression model residuals will be employed in order to determine whether a significant difference in share of Major record labels between the pre and the post-periods can be found.

From the pre-period regression model estimated in Table 4.4 ($y = 38.92857 + 0.2380952t$), the values for the post-period were extrapolated and, for each time unit of the

time series, the expected value given by the pre-period regression model was subtracted from the observed value. The difference between these extrapolated values and the observed values are the residuals. The procedure for calculating the residuals can be seen on Table 4.5.

Table 4.5: Residuals Determination for Intervention Analysis:

	Chart	Y Value	Model prediction	Residuals
Pre-period	y90w12	38	39,1666652	-1,1666652
	y90w25	38	39,4047604	-1,4047604
	y90w38	41	39,6428556	1,3571444
	y90w51	40	39,8809508	0,1190492
	y91w12	41	40,119046	0,880954
	y91w25	43	40,3571412	2,6428588
	y91w38	42	40,5952364	1,4047636
	y91w51	37	40,8333316	-3,8333316
Post-period	y92w12	41	41,0714268	-0,0714268
	y92w25	42	41,309522	0,690478
	y92w38	34	41,5476172	-7,5476172
	y92w51	40	41,7857124	-1,7857124
	y93w12	39	42,0238076	-3,0238076
	y93w25	29	42,2619028	-13,261903
	y93w38	38	42,499998	-4,499998
	y93w51	35	42,7380932	-7,7380932

Once the residuals were calculated, they were regressed over the post-period values only, in order to determine whether the observed values deviated significantly from the values extrapolated from the linear regression model from the pre-period observations. Table 4.5 shows the results for the regression model.

Table 4.6: Regression Analysis Summary For Regression Model Residuals Over the Post-Period

Variable	Beta	95% Confidence Interval for B	
		Lower Bound	Upper Bound
Time	-1.166667 (.6149129)	-2.671304	.3379711
Constant	9.928572 (7.814476)	-9.192763	29.04991
R ²	0.3750		
No. Of Observations	8		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001

Once again, the insignificance of the regression coefficients indicate that there was no change in trend or the constant level between the pre and post periods, which is consistent with the results from the differenced time-series analysis.

Deducting the constant from the post-period values:

An alternative way of determining whether there was a significant difference in the variable *Major* between the pre and post periods consists of transforming the post-period values by deducting the constant that resulted from the pre-period regression model, which was the only significant parameter of the regression.

To do so, the constant of 38.92857, obtained in Table 4.4, was deducted from all the post-period values, for which the resulting values can be seen in Table 4.7. After deducting the constant, the transformed values for the post period were regressed, as shown in Table 4.8.

Table 4.7: Transformation of Post-Period values by deducting the Pre-Period Constant:

	Chart	Y Value	Constant Deduction
Pre-period	y90w12	38	
	y90w25	38	
	y90w38	41	
	y90w51	40	
	y91w12	41	
	y91w25	43	
	y91w38	42	
	y91w51	37	
Post-period	y92w12	41	2,07143
	y92w25	42	3,07143
	y92w38	34	-4,92857
	y92w51	40	1,07143
	y93w12	39	0,07143
	y93w25	29	-9,92857
	y93w38	38	-0,92857
	y93w51	35	-3,92857

Table 4.8: Regression Analysis Summary For Regression Transformed Post-Period Values

Variable	Beta	95% Confidence Interval	
		Lower Bound	Upper Bound
Time	-0.9285714 (.6149129)	-2.433209	.5760663
Constant	9.928573 (7.814477)	-9.192762	29.04991
R ²	0.2754		
No. Of Observations	8		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001

The fact that, once again, the analysis does not yield any significant results means that the post-period part of the time series does not behave differently from the pre-period, which is consistent with the inexistence of an effect of the intervention found in the previous methods.

This ultimately means that there was no effect of the treatment on the dependent variable, and therefore a direct causality between the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling and the change in presence of Major label affiliated songs on the Billboard charts can't be established and H₁ is rejected.

The equivalent analysis was run using the wider definition of Major Record labels (*Major2*) as the dependent variable (see Appendix C). The first differencing method yielded similar results for both the narrow and wider definition of major labels. However, for the variable *Major2*, the coefficient for Time on both the residual analysis and constant deduction analysis was significant at the 90% confidence level. This means that two out of three of the analysis indicate that, once Distribution Deals are added to the major label constellation, not only there is a decrease of the share of major labels on the Billboard Charts, as was visible with the variable *Major*, but such decrease becomes significant. Such result also leads to the rejection of H₁.

4.2.2 Sample Use Over Time

The same method was applied to study the behaviour of sample presence in songs from the Hot 50 Hip-Hop, Rap and R&B charts during the same time-period and with the same intervention point.

Figure 4.2 shows the time series for the total number of samples per chart. These values represent a sum of the total number of samples each of the 50 songs of a chart contains. Again, there are 16 different observations coinciding with the 16 charts analysed and the intervention point, the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling is marked by the red vertical line.

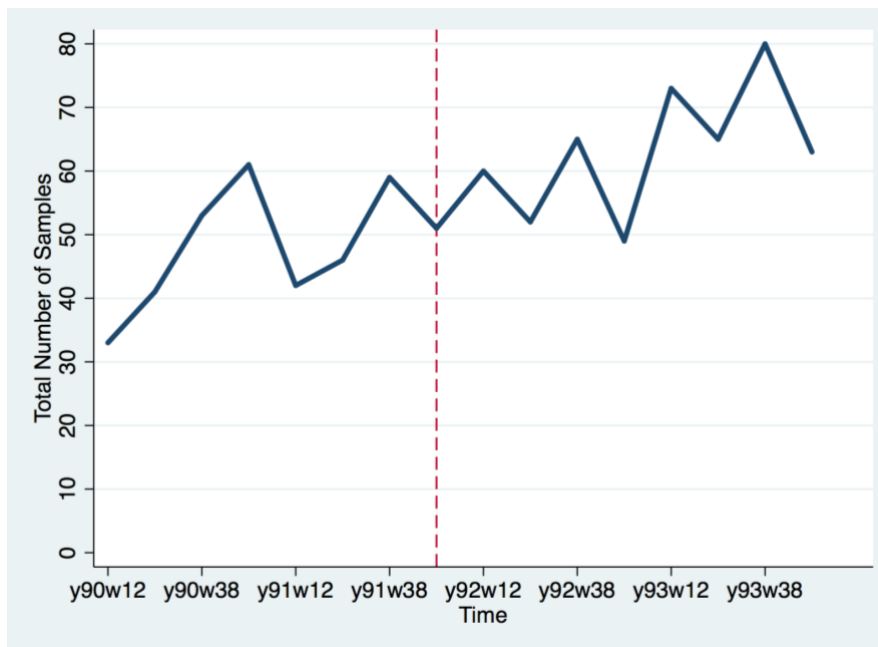


Figure 4.1: Total Number of Samples on Songs From Selected Hot 50 Hip-Hop, Rap and R&B Billboard Charts between 1990 and 1993

A visual analysis of Figure 4.2 suggests that the total number of samples seem to increase over time, which is again contrary to the prediction as given by H₂. On top of this upward trend, a high fluctuation of the total number of samples per chart is also visible in the figure.

Similar to the previous variable studied, this analysis will investigate whether this change in the total number of samples before and after the intervention is significant and can be attributed to the adverse court decision for the free use of unlicensed samples on songs by artists.

Intervention analysis of differenced time series:

Firstly, the time series for the total number of samples will be differenced with the aim of achieving a stationary time series. Table 4.9 shows the resulting values that emerged from the first differencing process.

Table 4.9: First-Difference Calculation:

	Chart	Y Value	First Difference
Pre-period	y90w12	33	-
	y90w25	41	8
	y90w38	53	12
	y90w51	61	8
	y91w12	42	-19
	y91w25	46	4
	y91w38	59	13
	y91w51	51	-8
Post-period	y92w12	60	9
	y92w25	52	-8
	y92w38	65	13
	y92w51	49	-16
	y93w12	73	24
	y93w25	65	-8
	y93w38	80	15
	y93w51	63	-17

Table 4.10 shows the results of the regression model that tested whether the first difference process has succeeded in making the pre-period time series stationary. Both coefficients for the trend and constant are statistically insignificant, which indicates that the series has been made stationary, and is therefore adequate to study any possible changes to it over the post period.

Table 4.10: Regression Analysis Summary For First Difference Values Over the Pre-Period

Variable	Beta	95% Confidence Interval	
		Lower Bound	Upper Bound
Time	-1.785714 (2.309033)	-7.721272	4.149844
Constant	11.5 (12.43452)	-20.46396	43.46396
R ²	0.1068		
No. Of Observations	7		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001

Table 4.11 presents the results to the regression of the differenced data for the post period. This regression model yielded no significant coefficients for the trend or the constant level, indicating that there is no effect of the treatment.

Table 4.11: Regression Analysis Summary For First Difference Values Over the Post-Period

Variable	Beta	95% Confidence Interval	
		Lower Bound	Upper Bound
Time	-1.071429 (2.564862)	-7.347419	5.204562
Constant	14.89286 (32.59494)	-64.86409	94.6498
R ²	0.0283		
No. Of Observations	8		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001

Intervention analysis based on regression model residuals:

The second stage of the analysis of the change of the total number of samples as a result of the intervention consists of performing an alternative data transformation of the time series. This is done by calculating the expected values for the post period based on the residuals extrapolated from the pre-period regression model, with the *Samples* as the dependent variable. This is shown in Table 4.12.

Table 4.12: Regression Analysis Summary For the Total Number of Samples on Songs From Selected Hot 50 Hip-Hop, Rap and R&B Billboard Charts Over the Pre-Period

Variable	Beta	95% Confidence Interval	
		Lower Bound	Upper Bound
Time	2.095238 (1.340929)	-1.185898	5.376374
Constant	38.82143*** (6.771361)	22.2525	55.39035
R ²	0.2892		
No. Of Observations	8		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001

The pre-period regression model has an insignificant coefficient for *Time*, but a constant that is significant at the 99% confidence level. From the pre-period regression model estimated in Table 4.12 ($y = 38.82143 + 2.095238t$), the values for the post-period were extrapolated and, for each point of the time series, the expected value given by the pre-period regression model was subtracted from the observed value. The residuals that resulted from this process are presented in Table 4.13.

Table 4.13: Residuals Determination for Intervention Analysis:

	Chart	Y Value	Model prediction	Residuals
Pre-period	y90w12	33	40,916668	-7,916668
	y90w25	41	43,011906	-2,011906
	y90w38	53	45,107144	7,892856
	y90w51	61	47,202382	13,797618
	y91w12	42	49,29762	-7,29762
	y91w25	46	51,392858	-5,392858
	y91w38	59	53,488096	5,511904
	y91w51	51	55,583334	-4,583334
Post-period	y92w12	60	57,678572	2,321428
	y92w25	52	59,77381	-7,77381
	y92w38	65	61,869048	3,130952
	y92w51	49	63,964286	-14,964286
	y93w12	73	66,059524	6,940476
	y93w25	65	68,154762	-3,154762
	y93w38	80	70,25	9,75
	y93w51	63	72,345238	-9,345238

Subsequently, the resulting residuals were regressed over the post-period only, in order to assess whether there was a significant change between the calculated values and the actual post-period observations. The results for the regression model are presented in Table 4.14.

Table 4.14: Regression Analysis Summary For Regression Model Residuals Over the Post-Period

Variable	Beta	95% Confidence Interval	
		Lower Bound	Upper Bound
Time	0.1071429 (1.433935)	-3.40157	3.615856
Constant	-2.976191 (18.22283)	-47.56584	41.61346
R ²	0.0009		
No. Of Observations	8		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001

The insignificant coefficients for both *Time* and the constant indicate that there was not a significant change between pre-period and post-period observations, meaning that the treatment had no effect on the total number of samples. This is consistent with the results of the differenced time series analysis.

Deducting the constant from the post-period values:

The third and final stage of the analysis consists of deducting the value of the constant from the post-period observations. This is done given that the pre-period regression model with *Samples* as the dependent variable yielded a significant constant, which calls for a transformation of the post-period values in order to account for this and test whether these transformed values are statistically significant.

Thus, the constant of 38.82143 was subtracted from the post-period values, as shown in Table 4.15. Following the transformation of the post period values, these were regressed over the post-period, and the model can be seen in Table 4.16.

Table 4.15: Transformation of Post-Period values by deducting the Pre-Period Constant

	Chart	Y Value	Constant Deduction
Pre-period	y90w12	33	
	y90w25	41	
	y90w38	53	
	y90w51	61	
	y91w12	42	
	y91w25	46	
	y91w38	59	
	y91w51	51	
Post-period	y92w12	60	21,17857
	y92w25	52	13,17857
	y92w38	65	26,17857
	y92w51	49	10,17857
	y93w12	73	34,17857
	y93w25	65	26,17857
	y93w38	80	41,17857
	y93w51	63	24,17857

Table 4.16: Regression Analysis Summary For Regression Transformed Post-Period Values

Variable	Beta	95% Confidence Interval	
		Lower Bound	Upper Bound
Time	2.202381 (1.433935)	-1.306332	5.711094
Constant	-2.976192 (18.22283)	-47.56584	41.61346
R ²	0.0026		
No. Of Observations	8		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001

Table 4.16 shows no significant coefficient for both the trend and the level of the constant, which is consistent with the previous two stages from the analysis and indicates that there is no significant change in the total number of samples on songs from the selected Hot 50 Hip-Hop, Rap and R&B Billboard Charts between 1990 and 1993. H₂ is rejected.

4.2.3 Percentage of Replayed Samples

The third and last variable to be analysed in the present research is the variable *Replayed*, which measures the percentage of total samples that are replayed samples, or interpolations, over time. H_3 expects a significant increase on the percentage of replayed samples due to the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* court decision, as replayed samples require the acquisition of less licenses in the sample clearance process, as opposed to the traditional direct samples.

A time series for the percentage of replayed samples per chart is presented in Figure 4.1. By analysing the figure, it is visible that the percentage of samples that are interpolations increases over time and experiences its highest values after the intervention point. However, there is also a high fluctuation on the percentages for the different points in time, which might cancel out any significant change in trend between the pre and post periods. The following analysis, divided in three stages just like the previous ones, will seek to understand whether there was a significant effect of the treatment.

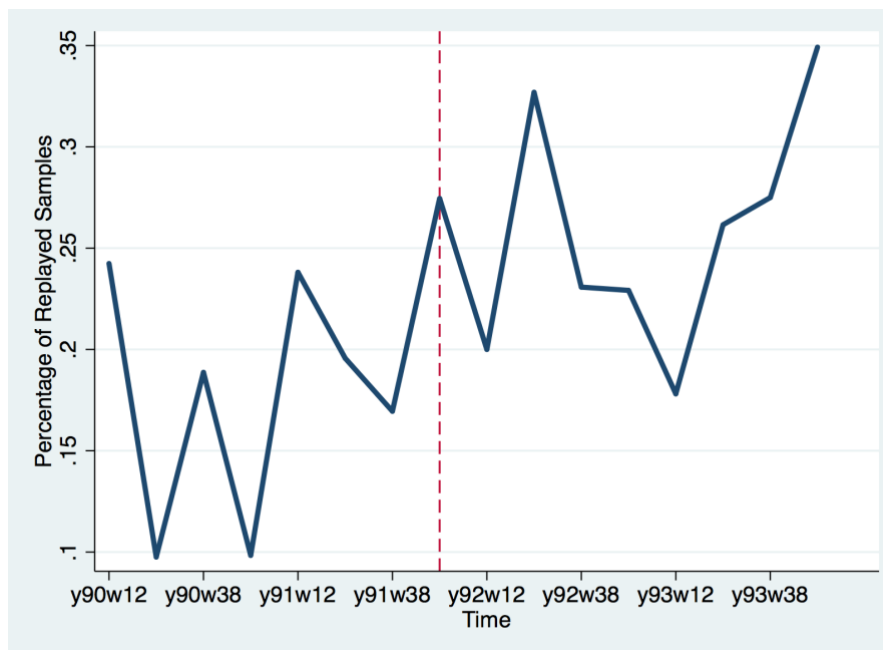


Figure 4.1: Percentage of Total Samples That Are Replayed, on Songs From Selected Hot 50 Hip-Hop, Rap and R&B Billboard Charts between 1990 and 1993

Intervention analysis of differenced time series:

Similar to the previous analyses for the variables *Major* and *Samples*, the first stage of the analysis consists of making the time series for the pre-period a stationary one through the

process of differencing, which is calculated in Table 4.17 by subtracting the previous time period value from the current one.

Table 4.17: First-Difference Calculation:

	Chart	Y Value	First Difference
Pre-period	y90w12	0,242424	-
	y90w25	0,097561	-0,144863267
	y90w38	0,188679	0,09111827
	y90w51	0,098361	-0,09031859
	y91w12	0,238095	0,139734582
	y91w25	0,195652	-0,042443064
	y91w38	0,169492	-0,026160648
	y91w51	0,27451	0,105018278
Post-period	y92w12	0,2	-0,074509804
	y92w25	0,326923	0,126923077
	y92w38	0,230769	-0,096153846
	y92w51	0,229167	-0,001602564
	y93w12	0,178082	-0,051084475
	y93w25	0,261538	0,08345627
	y93w38	0,275	0,013461538
	y93w51	0,349206	0,074206349

Once the first differences for the whole period were calculated, the resulting values were regressed over the pre-period only in order to determine whether the time series is stationary. Table 4.18 shows that neither the coefficients for *Time* and the constant are significant, which means that the time series has been made stationary and therefore an analysis of the differenced post-period values can be conducted in order to check whether this trend changes. This can be seen in Table 4.19.

Table 4.18: Regression Analysis Summary For First Difference Values Over the Pre-Period

Variable	Beta	95% Confidence Interval	
		Lower Bound	Upper Bound
Time	.0201058 (.0205322)	-.0326739	.0728854
Constant	-.0959453 (.1105692)	-.3801725	.1882818
R ²	0.1609		
No. Of Observations	7		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001

Table 4.19: Regression Analysis Summary For First Difference Values Over the Post-Period

Variable	Beta	95% Confidence Interval	
		Lower Bound	Upper Bound
Time	.0114649 (.0125915)	-.0193454	.0422752
Constant	-.1339745 (.1600161)	-.5255198	.2575708
R ²	0.1214		
No. Of Observations	8		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001

Table 4.19 shows that the regression model for the first difference values over the post-period yielded insignificant coefficients for *Time* and the constant, meaning that the analysis does not reveal evidence for an effect of the intervention on the percentage of samples that are replayed.

Intervention analysis based on regression model residuals:

The second stage of the analysis consists of transforming the data by running a regression on the pre-period and calculating the residuals for the post-period. The pre-period regression model is estimated on Table 4.20.

Table 4.20: Regression Analysis Summary For the Percentage of Total Samples That Are Replayed, on Songs From Selected Hot 50 Hip-Hop, Rap and R&B Billboard Charts Over the Pre-Period

Variable	Beta	95% Confidence Interval	
		Lower Bound	Upper Bound
Time	0.0088679 (0.0102098)	-.0161146	0.0338504
Constant	0.1481911** (0.051557)	0.0220356	0.2743466
R ²	0.1117		
No. Of Observations	8		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001

The variable *Replayed*, when regressed over the pre-period yields no significant coefficient for *Time* but a significant constant at the 95% level.

From the pre-period regression model ($y = 0.1481911 + 0.008879t$), the estimated values for the post-period were calculated, and subsequently the residuals were determined by subtracting the predicted values from the observed ones, as shown in Table 4.21.

Table 4.21: Residuals Determination for Intervention Analysis:

	Chart	Y Value	Model prediction	Residuals
Pre-period	y90w12	0,242424	0,157059	0,08536524
	y90w25	0,097561	0,1659269	-0,0683659
	y90w38	0,188679	0,1747948	0,01388445
	y90w51	0,098361	0,1836627	-0,085302
	y91w12	0,238095	0,1925306	0,04556464
	y91w25	0,195652	0,2013985	-0,0057463
	y91w38	0,169492	0,2102664	-0,0407749
	y91w51	0,27451	0,2191343	0,0553755
Post-period	y92w12	0,2	0,2280022	-0,0280022
	y92w25	0,326923	0,2368701	0,09005298
	y92w38	0,230769	0,245738	-0,0149688
	y92w51	0,229167	0,2546059	-0,0254392
	y93w12	0,178082	0,2634738	-0,0853916
	y93w25	0,261538	0,2723417	-0,0108032
	y93w38	0,275	0,2812096	-0,0062096
	y93w51	0,349206	0,2900775	0,05912885

These residuals were then regressed over the post-period values (Table 4.22), which resulted in a regression model with both the coefficients for *Time* and the constant being statistically insignificant. This indicates that, once again, there is no significant difference between the estimated values for the post-period based on the pre-period trend and the actual observed values, meaning that there is no evidence of the effect of the treatment on the dependent variable.

Table 4.22: Regression Analysis Summary For Regression Model Residuals Over the Post-Period

Variable	Beta	95% Confidence Interval	
		Lower Bound	Upper Bound
Time	0.000966 (0.0090436)	-0.0211629	0.023095
Constant	-0.0147798 (0.1149289)	-0.296007	0.2664411
R ²	0.0019		
No. Of Observations	8		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001

Deducting the constant from the post-period values:

The final stage consists of, once again, deducting the value of the constant of 0.1481911, estimated in the pre-period regression model (Table 4.20), from the values for the post-period observations. The transformed post-period values can be seen on Table 4.23.

Table 4.23: Transformation of Post-Period values by deducting the Pre-Period Constant

	Chart	Y Value	Constant Deduction
Pre-period	y90w12	0,242424	
	y90w25	0,097561	
	y90w38	0,188679	
	y90w51	0,098361	
	y91w12	0,238095	
	y91w25	0,195652	
	y91w38	0,169492	
	y91w51	0,27451	
Post-period	y92w12	0,2	0,0518089
	y92w25	0,326923	0,178731977
	y92w38	0,230769	0,082578131
	y92w51	0,229167	0,080975567
	y93w12	0,178082	0,029891092
	y93w25	0,261538	0,113347362
	y93w38	0,275	0,1268089
	y93w51	0,349206	0,201015249

Once the constant was deducted, the adapted values were regressed over the post period, as can be seen on Table 4.24.

Table 4.24: Regression Analysis Summary For Regression Transformed Post-Period Values

Variable	Beta	95% Confidence Interval	
		Lower Bound	Upper Bound
Time	.009834 (.0090436)	-.012295	.0319629
Constant	-.0147798 (.1149289)	-.2960007	.2664411
R ²	0.1646		
No. Of Observations	8		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001

Consistently with the last two methods for analysing the *Replayed* variable, the regression model estimated in Table 4.24 yielded no significant coefficients for both *Time* and the constant, which means that the treatment had no significant effect on the percentage of total samples that are interpolations. Despite the promising results shown by the univariate descriptive statistics that recognised a 7% average change in the percentage of replayed samples between the pre and post periods, H₃ is rejected since such change was not statistically significant.

5. Conclusion:

Even though the univariate data of the research has shown some thought-provoking changes in some of the variables, the analysis of such data has failed to accept the three hypotheses proposed by the author.

Firstly, while an increase in the share of Major record labels in Hot 50 Hip-Hop, Rap and R&B charts due to the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling was expected, the analysis has shown a downward trend, which even became significant once Distribution Deals were incorporated into the Major Label System constellation. Such results could be consistent with the view defended by Myer et al. (2007) that this shift from the independent to the major label system only became evident after 1997. However, the time-frame of the present research is unable to provide empirical support for such claim. On a longer time-span, a direct causality between the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling and the share of major labels in the charts is also likely to become less clear-cut.

The second hypothesis that suggested a decrease in the total number of samples present in songs following the intervention point has also been refuted by analysis of the samples data. The total number of samples has, contrary to what expected, increased over time. Nonetheless this increase was not statistically significant, meaning that there was not an evident change in trend between the pre and post periods. It is also relevant to point out that, along with this increase in the total number of samples, there was a simultaneous decrease of missing information regarding the presence of samples in songs, which could to some extent narrow the gap between the total number of samples present in songs prior to and following the *Grand Upright Music, Ltd v. Warner Bros. Records Inc.* ruling.

This second hypothesis builds upon research done by Sewell (2014), which detected a considerable difference between the total number of samples used before and after December 1991 among 5 chart-topping bands. However, when this research was extended to include all songs of selected Hot 50 Hip-Hop, Rap and R&B Billboard Charts between 1990 and 1993, the trend changes the direction of its slope and is simultaneously not statistically significant.

The third and final hypothesis suggested an increase in the percentage of total samples that were replayed as opposed to direct samples. The descriptive statistics showed an average of 7% increase between the pre and post-periods, although the analysis did not support its statistical significance.

Overall, the dataset for this research had too few points in time which did not allow for meaningful conclusions to be taken. The manual nature of the workload has not allowed for further data extension during the span of this research. A suggestion for further research would be to expand the analysis to include, not only more points in time (i.e. collect information

regarding Billboard Charts more frequently) between the years of 1990 and 1993, but also expand this time frame to account for longer-term effects. Such expansion would necessarily come with drawbacks, especially regarding other structural changes in the music industry that have since happened, such as technological developments or digitalisation, which could impact the variables in study and would have to be accounted for.

Finally, regarding the methods employed for analysing the data, the use of more sophisticated time series analysis methods could benefit this research. The addition of a moving average component, which states that a given observation is the mean of all past observations could be an interesting tool to smooth out short-term fluctuations and identify more clear trends in the data and would be a further step to be taken in developing this research.

5.1 Placing the research in the current state of the music industry:

This research witnessed the beginning of a “merger mania” that started in the late 1980’s (Tschmuck, 2006). Since then, and up to the present date, a series of mergers and buyouts has caused what was before known as the “Big Six” major record labels have become what are now the “Big Three” major record labels, Universal Music Group, Sony Music Entertainment and Warner Music Group.

It is also relevant to point out that most of the record labels that were independent at the time where the present research focused on, are now either defunct or incorporated into one of the “Big Three” major record labels. One exception to this trend is the record label Tommy Boy, which was a part of Warner Bros. Records at the time of the research and bought its independence back in 2002.

The music industry has also been experiencing a restructuring over the past 30 years. Technological advances and digitalisation have opened the scope for online distribution, which renders major label distribution channels less necessary for independent record labels to spread their artists’ work widely, and allows independents to compete directly with major record labels, equalising opportunities for the two (Mazierska et al. 2018).

Regarding the issue of sampling and its lack of regulation in the 1990’s, when its legitimacy was first questioned, one would think that almost 30 years later this issue would be solved by now. In fact, this is not the case and the lack of guidelines on what is and is not considered copyright infringement and lack of coherence between different rulings show that artists still operate in the so called “legal limbo”, which was predicted in 1994 to last forever (Falstrom, 1994).

As of mid-June 2020, the date when this research has been finished, the last lawsuit regarding the use of an unlicensed sample has happened June 9th, against rapper Travis

Scott, one of the most famous figures of Rap music, and chart-topper, of the present days. Throughout the past two years, renowned Hip-Hop artists such as Kanye West, Jay-Z or Kid Cudi have suffered similar fates as Scott, and have not always come out as winners. Moreover, up to 2014, a sample-based song was not eligible to compete for the Song of the Year category at the Grammy Awards, which still showed some prejudice against sampling as a legitimate way of making music.

This shows how the issue of sampling still is overlooked and how even the most well-established artists, affiliated with the most well-established record labels in the industry, are still being called out for playing around the “rules”. There is a need for the industry to take action and once and for all correct those fault lines by designing the missing rules, in order to establish a common ground for samplers to create freely and for sampled artists to be adequately accredited, without compromising sampling as a legitimate art form and all its implications for the Hip-Hop, Rap and R&B genres.

References:

- Anderson, R. (1993). Discovering the indies: The new world of independent record labels. *Library Journal*, 118(19), 39-41.
- Billboard - Music Charts, News, Photos & Video | Billboard. Retrieved from <https://www.billboard.com>
- Browne, D. (1991). The independents see vultures circling overhead. *New York Times*, 27, 26-35.
- Barnet, R. D., & Burriss, L. L. (2001). *Controversies of the music industry*. Greenwood Publishing Group.
- Burnett, R. (1992). The implications of ownership changes on concentration and diversity in the phonogram industry. *Communication Research*, 19(6), 749-769.
- Day, B. (2011). In defense of copyright: Record labels, creativity, and the future of music. *Seton Hall J. Sports & Ent. L.*, 21, 61.
- Falstrom, C. A. (1993). Thou Shalt Not Steal: Grand Upright Music Ltd. v. Warner Bros. Records, Inc. and the Future of Digital Sound Sampling in Popular Music. *Hastings LJ*, 45, 359.
- Handke, C. (2012). Digital copying and the supply of sound recordings. *Information Economics and Policy*, 24(1), 15-29.
- Handke, C. (2013). Empirical evidence on copyright. In *Handbook on the Digital Creative Economy*. Edward Elgar Publishing.
- Handke, C. (2020). Music industry. In *Handbook of Cultural Economics, Third Edition*. Edward Elgar Publishing.
- Latham, S. J. (2003). Newton v. Diamond; Measuring the Legitimacy of Unauthorized Compositional Sampling-A Clue Illuminated and Obscured. *Hastings Comm. & Ent. LJ*, 26, 119.

- Lee, S. (1995). Independent record companies and conflicting models of industrial practice. *Journal of Media Economics*, 8(4), 47-61.
- Lena, J. C. (2006). Social context and musical content of rap music, 1979–1995. *Social Forces*, 85(1), 479-495.
- Mazierska, E., Gillon, L., & Rigg, T. (Eds.). (2018). *Popular Music in the Post-Digital Age: Politics, Economy, Culture and Technology*. Bloomsbury Publishing USA.
- Myer, L., & Kleck, C. (2007). From independent to corporate: A political economic analysis of rap billboard toppers. *Popular Music and Society*, 30(2), 137-148.
- Rosenlund, P. S. (1978). Compulsory Licensing of Musical Compositions for Phonorecords Under the Copyright Act of 1976. *Hastings LJ*, 30, 683.
- Sewell, A. (2014). How copyright affected the musical style and critical reception of sample-based hip-hop. *Journal of Popular Music Studies*, 26(2-3), 295-320.
- Simcoe, T., & Watson, J. (2019). Digital Sampling, Copyright Assertion and Creative Reuse.
- Szymanski, R. M. (1995). Audio Pastichie: Digital Sampling, Intermediate Copying, Fair Use. *UCLA Ent. L. Rev.*, 3, 271.
- Towse, R., & Handke, C. (Eds.). (2013). *Handbook on the digital creative economy*. Edward Elgar Publishing.
- Tschmuck, P. (2006). *Creativity and innovation in the music industry* (pp. 205-230). Springer Netherlands.
- Volgsten, U. (2013). Emotions, identity, and copyright control: the constitutive role of affect attunement and its implications for the ontology of music. *The Emotional Power of Music: Multidisciplinary perspectives on musical arousal, expression, and social control*, 341-356.
- WhoSampled - Exploring the DNA of Music. Retrieved from <https://www.whosampled.com>

Wilson, S. R. (2002). Music sampling lawsuits: Does looping music samples defeat the de minimis defense. *J. High Tech. L.*, 1, 179.

Appendix A: Billboard Charts for weeks 12, 25, 38 and 51, between 1990 and 1993, with additional information on the number of samples per song.

This is presented in a separate file.

Appendix B: Detailed information on every record label/ interaction between record labels of the dataset, classification and criteria used to apply it.

This information was compiled through various sources, mainly Billboard, Discogs, RateYourMusic, Wikipedia and Artists and Record Labels' own websites. All information collected from Wikipedia was confirmed through any of the other sources.

The column 'Frequency' refers to the number of times that record label, or interaction between record labels, appears on the charts, out of 800 (the total number of song entries analysed). The column 'Criteria' addresses the letter of the criteria applied, each criterion and assigned letter is described in Table 3.1. The column 'Type' shows the classification attributed to the Label according to the criteria applied. Finally, the column 'Details' provides any label-specific additional information that justifies the Criteria applied and Type choice.

	Labels	Freq.	Criteria	Type	Details
1	A&M	18	<i>b</i>	Subsidiary	A&M Records was founded by the trumpeter Herb Alpert and the record promoter Jerry Moss. The label operated independently until 1989, when it was sold to Polygram. It then became a subsidiary of the major.
2	Alpha Int'l	1	<i>g</i>	Independent	Alpha International was an independent record label founded in 1977.
3	Alpha International IDJMG	3	<i>e</i>	Distribution Deal	During the years 1989-1991, Alpha Int'l was distributed by PolyGram
4	American Reprise	1	<i>e</i>	Distribution Deal	The label American changed distributors over the years. Between 1990 and 1997, Warner Bros. was in charge of American's distribution. Reprise records is a subsidiary for Warner Bros..

5	Apollo Theatre Motown	2	<i>e</i>	Distribution Deal	Apollo Theatre records was distributed by Motown Records.
6	Arista	39	<i>b</i>	Subsidiary	Arista was wholly owned by Bertelsmann Music Group (BMG) during the study period.
7	Atlanta Artists IDJMG	1	<i>c</i>	Subsidiary	Atlanta Artists was a sub-label of Mercury Records.
8	Atlantic	41	<i>b</i>	Subsidiary	In 1967, Atlantic became a wholly owned subsidiary of the major Warner Bros.
9	Bellmark	1	<i>f</i>	Independent	Bellmark records was a small independent record label formed in the 1980's by the producer Al Bell.
10	Big Beat Atlantic	2	<i>i</i>	Distribution Deal	The interaction between the independent label Big Beat and Atlantic Records is traced down only to the song "Show Me Love" by Robin S., which was released through Big Beat and distributed by Atlantic Records.
11	Biv 10 Motown	3	<i>d</i>	Artist-Imprint	Biv 10 Records was founded by Michael Bivins in 1992, through a joint venture with Motown Records.
12	Bust It	1	<i>d</i>	Artist-Imprint	Bust It Records was the rapper MC Hammer's own record label, co-owned by Capitol Records. Even though MC Hammer had autonomy in signing acts, Bust It depended on Capitol for distribution, sales, marketing, promotion and publicity support.
13	Bust It Capitol	7	<i>d</i>	Artist-Imprint	Given the success of MC Hammer's first releases on his label Bust It, By the end of 1990, his company entered into a multimillion-dollar producing venture with Capitol Records. Even though MC Hammer

					had autonomy in signing acts, Bust It depended on Capitol for distribution, sales, marketing, promotion and publicity support.
14	Capitol	41	<i>b</i>	Subsidiary	Capitol Records was acquired by the major EMI in 1955.
15	Captive Capitol	1	<i>d</i>	Artist-Imprint	Captive Records was Paula Abdul's short-lived vanity imprint on Virgin Records America Inc.
16	Charisma	1	<i>f</i>	Independent	There were two labels named Charisma Records. The first one was acquired by EMI in 1983 and ceased operations in 1986. However, our study refers to a second Charisma Records, which was an independent label that operated between 1990 and 1992.
17	Chrysalis EMI	5	<i>b</i>	Subsidiary	50% of Chrysalis Records was sold to EMI in 1990, and the remaining half in 1991.
18	Cold Chillin' Reprise	4	<i>e</i>	Distribution Deal	In 1990, Cold Chillin' Records signed a five-year distribution deal wit Warner Bros. Records. Reprise was owned by Warner Bros. Records.
19	Cold Chillin' Warner Bros.	1	<i>e</i>	Distribution Deal	In 1990, Cold Chillin' Records signed a five-year distribution deal wit Warner Bros. Records.
20	Columbia	35	<i>b</i>	Subsidiary	Columbia Records was acquired by Sony in 1988.
21	Cooltempo Warner Bros.	1	<i>i</i>	Subsidiary	The interaction between the labels Cooltempo and Warner Bros. can only be traced back to UK artist Monie Love. Cooltempo was Chrysalis' dance music imprint, which was part of EMI and promoted the song in the UK. Warner Bros. promoted the song in the US.

22	Crew La Poo Luke	1	<i>h</i>	Independent	Crew La Poo was a short-lived Hip-Hop oriented label founded by Larry Blackmon of Cameo in conjunction with Luther "Luke" Campbell. Luke Records was also an independent label owned by Luke Campbell.
23	Death Row/Interscope Atlantic	4	<i>e</i>	Distribution Deal	In 1992, Interscope acquired the exclusive rights to market and distribute releases from the hardcore hip hop label Death Row. Interscope Records was founded as a joint venture with Atlantic Records.
24	Def Jam Columbia	9	<i>e</i>	Distribution Deal	Def Jam was an independent label founded in 1984 by producer Rick Rubin and Russell Simmons . In 1985 Columbia Records made a deal with Def Jam and became its distributor.
25	Def Jam WORK	1	<i>e</i>	Distribution Deal	WORK Group was part of the Columbia Records label, with which Def Jam Recordings had a distribution deal.
26	Def Jam/Work Columbia	2	<i>e</i>	Distribution Deal	WORK Group was part of the Columbia Records label, with which Def Jam Recordings had a distribution deal.
27	Delicious Vinyl Atlantic	1	<i>e</i>	Distribution Deal	Delicious Vinyl was an independent record label founded by Matt Dike and Michael Ross in 1987. In 1992, it changed distributors from Island Records to Atlantic Records.
28	Delicious Vinyl IDJMG	3	<i>e</i>	Distribution Deal	Island Records was the distributor for Delicious Vinyl from 1988 until 1992, when the independent label changed distributors to Atlantic Records.
29	East West EEG	23	<i>c</i>	Subsidiary	The label East West was created by Atlantic in 1955, and remained under the Atlantic umbrella until 1994.

30	Elektra EEG	17	<i>c</i>	Subsidiary	EEG stands for Elektra Entertainment Group, which was already part of Warner Bros. at the time of this study.
31	EMI	11	<i>a</i>	"Big Six"	EMI was one of the six major labels of the study period.
32	Epic	28	<i>c</i>	Subsidiary	Epic Records was launched in 1953 by the Columbia Records unit of CBS for the purpose of marketing the genres that did not fit the theme of its more mainstream Columbia Records label. Sony Corporation bought CBS Records in 1987, and the company was renamed Sony Music in 1991, which makes Epic Records a part of the major Sony Music.
33	First Priority Atlantic	2	<i>e</i>	Distribution Deal	First Priority Records was a small independent hip-hop label of the late 1980's and early 1990's. It formed distribution relationships with Atlantic Records.
34	Flavor Unit Epic	2	<i>e</i>	Distribution Deal	Flavor Unit Records was an independent label constituted by a crew of MCs and DJs from New York City and Northern New Jersey. Epic Records was a distributor for Flavor Unit.
35	Fontana IDJMG	3	<i>g</i>	Distribution Deal	Fontana Records was a record label started in the 1950s as a subsidiary of the Dutch Philips Records. It was distributed by the PolyGram Group Distribution between 1972 and 1999.
36	Gasoline Alley MCA	8	<i>b</i>	Subsidiary	Gasoline Alley was an imprint of the major label MCA.
37	Gee Street/Island IDJMG	2	<i>c</i>	Subsidiary	In 1990, Gee Street was acquired by Island Records. Island itself was a subsidiary of PolyGram.

38	Gee Street/LaFace Arista	1	<i>i</i>	Subsidiary	The interaction between these 3 labels is only traced back to the song “I’d Die Without You” by P.M. Dawn. The artist was signed to Gee Street Records and this song integrated the soundtrack for the movie “Boomerang”, which was released through LaFace Records.
39	Geffen Reprise	1	<i>b</i>	Subsidiary	Geffen Records of operated through Warner for a decade, until its contract with the company expired in 1990, and the label was sold to MCA Music Entertainment. Reprise is part of Warner.
40	Giant Reprise	16	<i>d</i>	Artist-Imprint	Giant Records was launched in 1990 as a joint venture between Warner Bros. Records and record executive Irving Azoff. While the majority of artists were primarily distributed by Warner Bros. Records, some Giant Recording artists were distributed by Reprise Records.
41	Giant Warner Bros.	3	<i>d</i>	Artist-Imprint	Giant Records was launched in 1990 as a joint venture between Warner Bros. Records and record executive Irving Azoff. While the majority of artists were primarily distributed by Warner Bros. Records, some Giant Recording artists were distributed by Reprise Records.
42	Got	1	<i>i</i>	Independent	Given that there is no information on Got Records online, and it is only traced back to one artist (Billy Davis), we assume it was an independent label.
43	ID RCA	1	<i>e</i>	Distribution Deal	I.D. Records was a Chicago-based dance label owned by producer Steve “silk” Hurley and Frank Rodrigo. In 1992, they secured a deal with RCA Records.
44	Impact MCA	1	<i>b</i>	Subsidiary	Impact was a subsidiary of MCA Records.

45	Interscope Atlantic	3	<i>d</i>	Artist-Imprint	Interscope Records was founded in 1990 by Jimmy Lovine and Ted Field as a joint venture with Warner Music Group's Atlantic Records.
46	Island IDJMG	7	<i>b</i>	Subsidiary	Island Records was founded as independent but it was acquired by PolyGram in 1989.
47	Jive	19	<i>f</i>	Independent	Jive Records was an independent label part of the Zomba Group. In 1991, when Jive's distribution deal with RCA records ended, BMG acquired 25% of the Zomba Group and began distributing some of Jive's records. However, the label operated as independently managed until 2003, when Bertelsmann Music Group (BMG) acquired the remainder of its parent company.
48	Jive RCA	7	<i>e</i>	Distribution Deal	Jive Records entered a distribution deal with RCA Records at the end of the 1980's, until 1991
49	Jive/RCA Arista	1	<i>e</i>	Distribution Deal	Arista was the North American distributor of Jive Records from 1981 until 1987. In 1987 Jive cut distribution ties with Arista and as the 1980s drew to a close, the label entered a distribution deal with Arista's sister label RCA Records.
50	Keia EEG	6	<i>e</i>	Artist-Imprint	Keia Records was Keith Sweat's own record label, supported by Elektra Entertainment.
51	LaFace Arista	13	<i>d</i>	Artist-Imprint	In 1989, Arista entered into a joint venture with Antonio "L.A." Reid and Babyface in the creation of LaFace Records.
52	LaFace/Epic Soundtrax Epic	1	<i>i</i>	Subsidiary	Epic Soundtrax was an American record label, which was a division of Sony Music's Epic Records, established in 1992 as an imprint for soundtrack albums. The one

					song credited to LaFace/Epic Soundtrax Epic is by TLC, which were signed to LaFace, for the soundtrack of a movie from Epic Soundtrax. All the labels concerned were subsidiaries of major labels.
53	Life Bellmark	3	<i>h</i>	Independent	Life is a Bellmark Records imprint. Bellmark Records is an independent label.
54	Luke	5	<i>g</i>	Independent	Luke Records was an independent label owned by Luke Campbell.
55	Luke Atlantic	1	<i>e</i>	Distribution Deal	Luke Records was distributed by Atlantic Records from 1990 to 1993.
56	LV Epic	3	<i>d</i>	Artist-Imprint	LV Records was a label created by artist Luther Vandross in partnership with Epic Records and Sony Music.
57	Manhattan Capitol	1	<i>c</i>	Subsidiary	In 1988, EMI America later merged with sister label Manhattan Records, becoming EMI Manhattan Records. Capitol absorbed the label in 1990.
58	Maverick/Sire Warner Bros.	2	<i>d</i>	Artist-Imprint	Maverick is Madonna's own record label, formerly owned and operated by Warner Bros. Sire was also owned by Warner Bros.
59	MCA	51	<i>a</i>	"Big Six"	MCA Records was one of the six major labels of the study period.
60	Mercury IDJMG	14	<i>b</i>	Subsidiary	Mercury Records was a subsidiary of PolyGram.
61	Motown	44	<i>b</i>	Subsidiary	Motown Records was independent until 1988, when it was sold to the major MCA Records.
62	Nastymix	1	<i>f</i>	Independent	Nastymix was an independent label founded in 1983 by Sir Mix-a-Lot and businessman Ed Locke.

63	Next Plateau	2	<i>f</i>	Independent	Next Plateau Records was an independent label and independently distributed during the years of 1984 and 1996.
64	Next Plateau/FFRR IDJMG	2	<i>i</i>	Distribution Deal	The interaction between these labels is traced back to the band Salt-N-Pepa. The band was signed to London Records (of which FFRR is a part of) for all territories outside the USA. In the USA, Next Plateau resorted to PolyGram's Independent Label Sales Division.
65	Next Plateau/London-Sire UMe	1	<i>i</i>	Distribution Deal	The interaction between these labels is traced back to the band Salt-N-Pepa. The band was signed to London Records for all territories outside the USA. In the USA, Next Plateau resorted to PolyGram's Independent Label Sales Division.
66	OBR Columbia	4	<i>e</i>	Distribution Deal	OBR was a Def Jam short-lived subsidiary label called OBR Records, short for Original Black Recordings, which catered toward R&B artists. It had a distribution deal with CBS Records through Columbia Records.
67	Orpheus EMI	2	<i>e</i>	Distribution Deal	Orpheus Music was an independent record label dedicated to the genres of R&B and jazz. It engaged in a distribution deal with EMI for several years.
68	Orpheus Epic	2	<i>i</i>	Distribution Deal	The two entries for Orpheus/Epic refer to songs by Eric Gable, who released them through both Orpheus Records and Epic Records.
69	Outburst/Def Jam WORK	1	<i>e</i>	Distribution Deal	Outburst was a Los Angeles-based independent Hip-Hop label from the mid-90s which became the first West Coast-based label to be distributed under the Rush Associated Label (RAL) sub-group of Def Jam Recordings. WORK Group was

					part of the Columbia Records label, with which Def Jam Recordings had a distribution deal.
70	P.R.O. Division Columbia	1	<i>e</i>	Distribution Deal	P.R.O. Division is a sub-label of Rush Associated Labels, which is a Def Jam Recordings sub-group of labels. In 1985 Columbia Records made a deal with Def Jam and became its distributor.
71	Paisley Park Reprise	1	<i>d</i>	Artist-Imprint	Paisley Park Records was created by the musician Prince in association with, and with partial funding by Warner Bros. Records. All Paisley Park albums were distributed by Warner Bros. Records, or by sister label Reprise Records.
72	Paisley Park Warner Bros.	7	<i>d</i>	Artist-Imprint	Paisley Park Records was created by the musician Prince in association with, and with partial funding by Warner Bros. Records. All Paisley Park albums were distributed by Warner Bros. Records, or by sister label Reprise Records.
73	Pendulum EEG	6	<i>c</i>	Subsidiary	Pendulum Records was a hip-hop oriented record label founded in 1991. At this time Pendulum was a sub-label of Elektra.
74	Pendulum EMI	2	<i>e</i>	Subsidiary	In September 1993 EMI Records Group took over distribution after purchasing a 50% stake in the label.
75	Perspective	1	<i>d</i>	Artist-Imprint	Perspective was a record label launched in 1991 as a joint venture between the producing team Jimmy Jam and Terry Lewis and A&M Records.
76	Perspective A&M	11	<i>d</i>	Artist-Imprint	Perspective was a record label launched in 1991 as a joint venture between the producing team Jimmy Jam and Terry Lewis and A&M Records.

77	Philadelphia International Zoo	3	<i>h</i>	Independent	Philadelphia International Records was an independent label who engaged in several distribution deals with different labels. In this case, Zoo is also an independent label
78	Polydor	1	<i>b</i>	Subsidiary	During the study period, Polydor ran as a subsidiary label under the major PolyGram.
79	Polydor IDJMG	1	<i>b</i>	Subsidiary	During the study period, Polydor ran as a subsidiary label under the major PolyGram.
80	Priority	3	<i>f</i>	Independent	Founded in 1985, Priority Records remained independent until 1996, when it was bought by EMI.
81	Profile	6	<i>f</i>	Independent	Profile was an independent label during the study period. In 1998, it was sold to Arista.
82	Qwest Warner Bros.	16	<i>d</i>	Artist-Imprint	Qwest Records is a record label started by Quincy Jones in 1890 as a joint venture with Warner Bros. Records., and owned by Warner Music Group.
83	Rap-A-Lot Priority	3	<i>h</i>	Independent	The label Rap-A-Lot was distributed by Priority Records between 1991 and 1994. Priority Records was still independent at the time.
84	RCA	18	<i>b</i>	Subsidiary	RCA Records was owned by Bertelsmann Music Group (BMG) during the period in which our data was collected.
85	Reprise	15	<i>b</i>	Subsidiary	Reprise records is a record label started by Frank Sinatra in 1960 and sold to Warner Bros. in 1963. Warner deactivated the label in 1976 but it was reactivated in 1985, remaining active.
86	Rip-It	1	<i>f</i>	Independent	Rip-It Records was an independent label founded, owned and operated by business partners Barry DuFae & Louis Bell Jr..

87	Ruffhouse Columbia	4	<i>d</i>	Artist-Imprint	Ruffhouse Records is an American record label founded in 1989 by Chris Schwartz and Joe Nicolo as a joint venture with Columbia Records.
88	Ruthless Atlantic	5	<i>e</i>	Distribution Deal	Ruthless Records had several distributors simultaneously, being Atlantic Records one of them.
89	Ruthless Relativity	1	<i>h</i>	Independent	Relativity was also a distributor for Ruthless Records. Relativity was independent at the time.
90	Savage	1	<i>f</i>	Independent	Savage was an independent label that was founded by investors from the Netherlands Antilles.
91	SBK EMI	5	<i>b</i>	Subsidiary	SBK was founded in 1988 and was part of the EMI group.
92	Select	3	<i>g</i>	Independent	Select Records was an independent records label founded in 1981 by Fred Munao.
93	Select EEG	1	<i>e</i>	Distribution Deal	Select Records had a distribution deal with Elektra Records between 1990 and 1995.
94	Silas MCA	4	<i>b</i>	Subsidiary	Silas Records was founded in 1991 by Louil Silas Jr., and operated as an imprint of MCA Records.
95	Sire Warner Bros.	1	<i>b</i>	Subsidiary	Sire Records was acquired by Warner Bros. Records in 1978.
96	So So Def Columbia	3	<i>d</i>	Artist-Imprint	The label So So Def was established as a joint venture with Sony and Columbia.
97	Solar Epic	5	<i>e</i>	Distribution Deal	SOLAR (acronym for Sound of Los Angeles Records) was an American record label founded in 1977 by Dick Griffey. In 1989, it signed a new distribution deal with Epic Records.

98	Soul MCA	2	<i>c</i>	Subsidiary	Soul Records operated by Motown, which was sold to MCA in 1988.
99	Tabu A&M	7	<i>e</i>	Distribution Deal	Tabu Records was distributed by A&M between 1991 and 1993.
100	Tabu Epic	3	<i>e</i>	Distribution Deal	Tabu Records was distributed by Epic between 1978 and 1991.
101	Taj Motown	3	<i>c</i>	Subsidiary	In the charts, Taj Records is only traced back to artist Gerald Alston. When Alston left the Manhattans to pursue a solo career, he signed with Taj Records, which Motown then acquired and distributed.
102	TMR Bellmark	2	<i>h</i>	Independent	Both TMR and Bellmark records were independent labels. (5)
103	Tommy Boy	15	<i>b</i>	Subsidiary	In 1985-2002, Warner Bros. Records entered into a partnership with Tommy Boy and acquired half of the label, however it allowed the label to use independent distribution as it saw fit.
104	Tommy Boy Reprise	2	<i>b</i>	Subsidiary	Tommy Boy had the option to distribute artists through the major-label channel through Warner Bros. Records or Warner-owned Reprise Records.
105	Triad Jive	1	<i>f</i>	Independent	Triad Records was a Californian independent label.
106	Uptown MCA	33	<i>e</i>	Distribution Deal	The label Uptown had a distribution deal with the major MCA.
107	Vendetta A&M	1	<i>c</i>	Subsidiary	Vendetta Records was a short-lived subsidiary of A&M records.
108	Vintertainment EEG	3	<i>e</i>	Distribution Deal	Vintertainment was an Old School, hip-hop and R&B label founded by Vincent David. The label had a distribution deal with Elektra.

109	Virgin Capitol	20	<i>c</i>	Subsidiary	Virgin Records was a British record label. Virgin Records America, Inc., the company's North American operations were founded in 1986, and have operated exclusively under the Capitol Music Group imprint.
110	Warner Bros.	24	<i>a</i>	"Big Six"	Warner Bros. was one of the six major labels of the study period.
111	Wing IDJMG	10	<i>c</i>	Subsidiary	Wing Records was a record label subsidiary of Mercury Records founded in 1955. In 1986, the label was revived by Mercury's parent company, PolyGram.
112	Wing Polydor	3	<i>c</i>	Subsidiary	Wing Records was a record label subsidiary of Mercury Records founded in 1955. In 1986, the label was revived by Mercury's parent company, PolyGram. Polydor was part of PolyGram.
113	Wing/Mercury Island	1	<i>c</i>	Subsidiary	Wing Records was a record label subsidiary of Mercury Records founded in 1955. In 1986, the label was revived by Mercury's parent company, PolyGram. Both Mercury Records and Island Records were part of PolyGram.
114	Wrap Ichiban	2	<i>h</i>	Independent	Ichiban Records was an independent record label founded in 1985 by John Abbey and Nina Easton. Wrap Records was a subsidiary of Ichiban Records.
115	WTG Epic	1	<i>c</i>	Subsidiary	According to the online database rateyourmusic , WTG was a California-based Epic Records imprint launched by 3 record executives - Walter Yetnikoff, Tommy Mottola & Gerry Greenberg.
116	Zoo	1	<i>f</i>	Independent	Zoo Records was a British independent record label founded in 1978 by Bill Drummond and David Balfe.

Appendix C: Time-series analysis results for Major Label Presence on the Hot 50 Hip-Hop, Rap & R&B Charts, using the wider definition of Major Labels (*Major2*) as the dependent variable:

Note: The procedure was the same as in section 4.1.1, only the figures and the results vary.

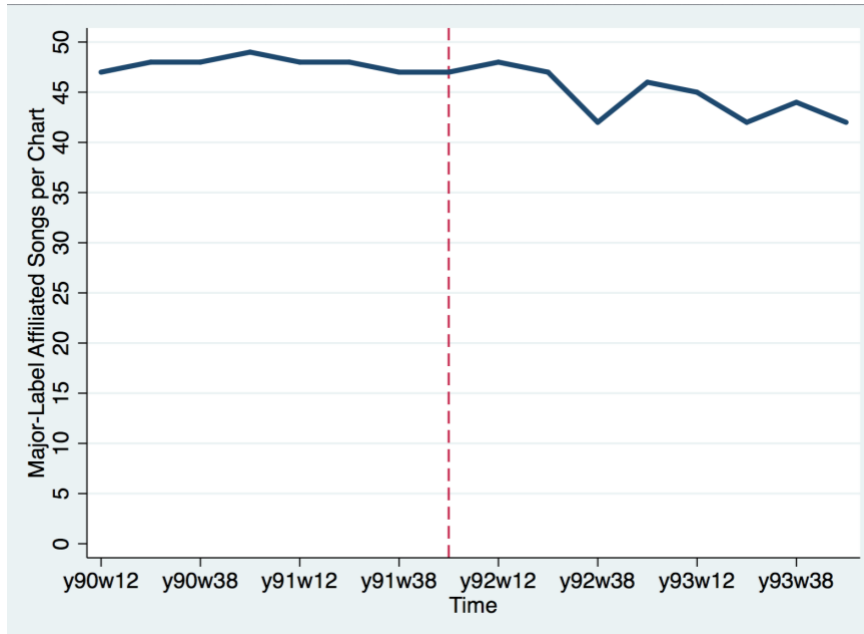


Figure C.1: Major Label-Affiliated Songs per Chart, between 1990 and 1993

Intervention analysis of differenced time series:

Table C.1: First-Difference Calculation:

	Chart	Y Value	First Difference
Pre-period	y90w12	47	-
	y90w25	48	1
	y90w38	48	0
	y90w51	49	1
	y91w12	48	-1
	y91w25	48	0
	y91w38	47	-1
	y91w51	47	0
	Post-period	y92w12	48
y92w25		47	-1
y92w38		42	-5
y92w51		46	4
y93w12		45	-1
y93w25		42	-3
y93w38		44	2
y93w51		42	-2

Table C.2: Regression Analysis Summary For First Difference Values Over the Pre-Period

Variable	Beta	95% Confidence Interval	
		Lower Bound	Upper Bound
Time	-0.7142857 (.4356557)	-1.834174	.405603
Constant	3.428571 (2.346078)	-2.602214	9.459357
R ²	0.3497		
No. Of Observations	7		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001

Table C.3: Regression Analysis Summary For First Difference Values Over the Post-Period

Variable	Beta	95% Confidence Interval	
		Lower Bound	Upper Bound
Time	-0.0595238 (.4786149)	-1.230652	1.111605
Constant	.1190476 (6.082364)	-14.76396	15.00206
R ²	0.0026		
No. Of Observations	8		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001

Intervention analysis based on regression model residuals:

Table C.4: Regression Analysis Summary For Major Label (Wider Definition) Presence on the Billboard Charts Over the Pre-Period:

Variable	Beta	95% Confidence Interval	
		Lower Bound	Upper Bound
Time	-0.0714286 (.1141865)	-0.3508328	.2079756
Constant	48.07143**** (.5766134)	46.66051	49.48235
R ²	0.0612		
No. Of Observations	8		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001

Table C.5: Residuals Determination for Intervention Analysis:

	Chart	Y Value	Model prediction	Residuals
Pre-period	y90w12	47	48,0000014	-1,0000014
	y90w25	48	47,9285728	0,0714272
	y90w38	48	47,8571442	0,1428558
	y90w51	49	47,7857156	1,2142844
	y91w12	48	47,714287	0,285713
	y91w25	48	47,6428584	0,3571416
	y91w38	47	47,5714298	-0,5714298
	y91w51	47	47,5000012	-0,5000012
Post-period	y92w12	48	47,4285726	0,5714274
	y92w25	47	47,357144	-0,357144
	y92w38	42	47,2857154	-5,2857154
	y92w51	46	47,2142868	-1,2142868
	y93w12	45	47,1428582	-2,1428582
	y93w25	42	47,0714296	-5,0714296
	y93w38	44	47,000001	-3,000001
	y93w51	42	46,9285724	-4,9285724

Table C.6: Regression Analysis Summary For Regression Model Residuals Over the Post-Period:

Variable	Beta	95% Confidence Interval	
		Lower Bound	Upper Bound
Time	-0.6190476*	-1.307976	.0698813
	(.2815503)		
Constant	5.059524	-3.695567	13.81461
	(3.578016)		
R ²	0.4462		
No. Of Observations	8		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001

Deducting the constant from the post-period values:

Table C.7: Transformation of Post-Period values by deducting the Pre-Period Constant:

	Chart	Y Value	Constant Deduction
Pre-period	y90w12	47	
	y90w25	48	
	y90w38	48	
	y90w51	49	
	y91w12	48	
	y91w25	48	
	y91w38	47	
	y91w51	47	
	Post-period	y92w12	48
y92w25		47	-1,07143
y92w38		42	-6,07143
y92w51		46	-2,07143
y93w12		45	-3,07143
y93w25		42	-6,07143
y93w38		44	-4,07143
y93w51		42	-6,07143

Table C.8: Regression Analysis Summary For Regression Transformed Post-Period Values

Variable	Beta	95% Confidence Interval	
		Lower Bound	Upper Bound
Time	-0.6904762*	-1.379405	-0.0015473
	(.2815503)		
Constant	5.059522	-3.695568	13.81461
	(3.578016)		
R ²	0.5006		
No. Of Observations	8		

Notes: Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01, ****p<0.001