Song product characteristics and music commercial performance

Arilova A. Randrianasolo & Jeremiah Sala[1]

Abstract

The purpose of this paper is to investigate how the time-related factor known as tempo, the pitch-related factor known as song key, and the texture-related factor reflected by genre influence a song's commercial performance. The authors utilise Poisson and ordinal regression analyses across two samples to test the influences of tempo, song key, and genre on commercial performance. Sample 1 is composed of the #1 songs from 1958 until 2015, and sample 2 is composed of the top 100 songs of 2012 and 2013 in the United States. Results of the regression analyses indicate that song key and genre influence different aspects of performance. The findings of this research provide implications to music managers faced with the decision to select a song to promote for an artist or album. Specifically, this research indicates that managers seeking to select singles to promote for an artist or album should consider song product characteristics that may influence commercial success.

Keywords: music marketing, music product management music promotions music tempo, music pitch, music texture

1 Introduction

Within the music industry, independent artists and record labels make strategic decisions to select songs to promote from an album, known as singles, in order to create awareness for new albums and artists (Kaplan & Haenlein 2012). This strategic marketing management decision has

[1] **Arilova A. Randrianasolo** is an Assistant Professor of Marketing at John Carroll University's Boler School of Business. He holds a Bachelor's degree in international business and entrepreneurship from Saint Louis University, a Master of Arts degree in Music Business from New York University, and a Ph.D. in International Business and Marketing from Saint Louis University. His research focuses on music consumption, international marketing strategy, and international consumer behavior. (arandrianasolo@jcu.edu). **Jeremiah Sala** works in the finance sector, and he is a business graduate student at the University of Missouri Saint Louis. Research interests include supply chain management and music branding. (jbs2586@aol.com).

been especially crucial to music commercial performance in the past decade due to continually declining record sales and shifts in music retailing trends and platforms, as well as the unbundling of music products (Elberse 2010; Sinha & Mandel 2008). Particularly, in 2004, the revenue for the global recording industry was $33.6 billion (IFPI 2005); yet by 2014, this number has decreased to $15 billion (IFPI 2015). In fact, within the calendar year 2015, no album was certified platinum by the Recording Industry Association of America (RIAA) until the month of August when Drake's album entitled "If You're Reading This, It's Too Late" finally reached sales of 1 million units after 6 months of release (Caulfield 2015). This continual decrease in music retail sales, along with the continued unbundling of music products makes the question of what produces a successful single extremely relevant to music marketing managers seeking to gain commercial success. This paper investigates this question from the context of song product characteristics. Specifically, in the research reported here, we examine how tempo, song key, and music genre influence commercial success.

Investigating these song characteristics is crucial to music marketing because it enforces the idea that music is a consumer product that can be created with its unique product characteristics. Within business research, music has been discussed within contexts of advertising (e.g. Alpert et al. 2005; Gorn 1982; Kellaris & Cox 1989; Dunbar 1990), retail environments (e.g. Morrison & Beverland 2003), services (e.g. Caldwell & Hibbert 1999; Caldwell & Hibbert 2002), social media (e.g. Hanna et al. 2011; Mangold & Faulds 2009), online piracy (e.g. Appleyard 2015; Sudler 2013), and online shopping (e.g. Elberse 2010). Business research, however, has relatively ignored the perspective of music as a consumer product that can be conceived, created, marketed, and managed to target customers. From this perspective, we investigate music product specifications that may influence commercial performance.

Drawing from previous findings in marketing and music research (e.g. Bruner 1990; Caldwell & Hibbert 2002; Meyer 1956), we investigate how the time-related factor known as tempo, the pitch-related factor known as song key, and the texture-related factor represented by music

genre influence music commercial performance, and give insight to answering the research question: what song characteristics produce successful singles?

The following sections first review the literature on music product characteristics, develop hypotheses of how the characteristics influence success, empirically test the hypotheses, and finally discuss the managerial and theoretical implications of this research.

2 Music product characteristics

As in most consumer goods, product characteristics are proposed to have an influence on the product's sales (Baltas & Saridakis 2009; Poon & Joseph 2000; Zhu & Zhang 2010). Music products, however, are not similar to other tangible consumer goods because they are consumed through intangible audio. This intangible audio has been found to stimulate specific brain processes within consumers (Clynes & Nettheim 1982; Seidman 1981). Bruner (1990) finds that music is "not simply a generic sonic mass, but rather a complex chemistry of controllable elements" (Bruner 1990: 94). Consistent with this logic, Bruner (1990) highlights that music is a stimulus of moods; and further proposes that time-related, pitch-related, and texture-related expressions all affect the consumer's mood. Similarly, marketing research concerning message execution tactics through methods such as music, humour, and imagery have found that these tactics influence consumers' feeling states (e.g. Gorn 1982; Alpert & Alpert 1990). This research stream finds that when a conditioned stimulus such as a brand is matched with an unconditioned stimulus such as music, an emotional response is produced by the consumer, which is then associated with the brand (Alpert & Alpert 1990). Music thus influences affective states (Kellaris & Kent 1993).

Since music is found to influence affective states, it can be proposed that music characteristics can be constructed to influence these states. For example, it is well-known in music research that songs in major keys typically trigger positive moods, while songs in minor keys trigger negative moods (Husain et al. 2002). Influencing affective states is extremely

relevant to music marketing because affective states such as mood have been found to influence behaviour (Bendapudi et al. 1996; Gardner 1985). Supporting this stance, Alpert and Alpert (1990) find that music not only influences mood, but also attitudes and behaviour. Music thus not only directly influences affective states such as mood, but also may indirectly influence consumer behaviour (Yalch & Spangenberg 2000). Similarly, Krishman et al. (2012) find that the number of tones in a sonic logo, or "sogo", influences consumer willingness to pay for a product. Building off of these previous findings, this paper takes the perspective that music product characteristics such as those highlighted by Bruner (1990) (time, pitch, and texture) influence consumer affective states such as mood, which influences consumer behaviour such as music purchase or streaming. We thus posit that music product characteristics influence commercial performance due to the characteristics' influence on consumer behaviour. The following sections discuss three specific product characteristics (tempo, key, and genre) and their influence on performance.

Tempo

Tempo is a time-related expression in music. It has been found to be an important musical characteristic that directly affects consumer behaviour. In their study of how music tempo affects restaurant patron behaviour, Caldwell and Hibbert (2002) find that slow-tempo music played in restaurants influence consumers to spend more time in the restaurant than fast-tempo music. Milliman (1982) finds that music tempo affects the speed at which people move around in a store. Similarly, several researchers have highlighted the influence of music in retail settings (i.e. Chebat et al. 2001; Dubé & Morin 2001; Garlin & Owen 2006; Morrison et al. 2011; Spangenber et al. 2005). Roballey et al. (1985) found that music tempo affected the speed at which people ate at a university cafeteria. Music tempo thus has been shown to affect consumer behavior, and this current paper takes the perspective first established by Bruner (1990) to posit that music tempo significantly influences music commercial performance.

Musicology researchers have found that there is a specific tempo that human beings prefer, known as *preferred tempo* (Collyer et al. 1994; Fraisse 1982; Moelants 2002). Although researchers have generally agreed on the existence of preferred tempo, there is disagreement about what the level of beats per minute (bpm) actually is for this phenomenon. For example, Fraisse (1982) finds it at 100bpm, while Moelants (2002) finds it at around 120bpm. Although there is no real consensus among musicologists on the exact level of preferred tempo; there is some consensus that preferred tempo lies in a range of bpm where human beings prefer (Van Noorden & Moelants 1999; Moelants 2002). Some researchers have stated that preferred tempo lies between 70-110 bpm (e.g. Dowling & Hardwood 1986); thus, above and below this range is not preferable. From this perspective, we posit that successful songs fall within a range of preferred tempi, and although we do not hypothesize on the exact level of preferred tempo, we do hypothesize that there is a curvilinear relationship between tempo and song success.

The theoretical position here is that there should be an inverted U-shaped relationship between tempo and commercial performance. This theoretical position is based on the logic that (1) human beings have a preferred range of tempo, and therefore (2) songs within a preferred tempo range should be more successful than songs above or below this range. The first hypothesis is formalized:

H1: There is a curvilinear (inverted U-shape) relationship between tempo and song commercial performance

Song key

One important aspect of pitch-related expressions is the key of the musical composition. Researchers have found that major keys are more happy and exciting; while minor keys are more plaintive, angry, and mysterious (Bruner 1990; Hevner 1935). Consistent with these results, Meyer (1956) proposes a theory of deviations from expectations in music where it is stated that consistent expectations of normative music progressions are reflected in major keys, while minor keys are character-

ized by more forceful, complex departures from the tones in major scales (Alpert & Alpert 1990; Meyer 1956). Adopting the implications of these findings, we propose that songs in major keys gain more commercial success than songs in minor keys. This perspective is supported by the stance that music which evokes happy and exciting emotions is more likely to have success than sad or angry music.

Happiness is described as the experience of joy, contentment, and a sense that life is good, meaningful, and worthwhile (Lyubomirsky 2001; Hellen & Saaksjarvi 2011). Marketing researchers have found that positive affective values such as happiness positively influence consumer behavior (e.g. Adaval 2003; Meloy 2000; Mogilner et al. 2012). Adopting this logic, we thus hypothesize that songs in major keys, which evoke positive emotions, are more successful than song in minor keys, which evoke less positive emotions.

H2: Songs in major keys are more commercially successful than songs in minor keys

Genre

Within this paper, we propose that musical genre represents a texture-related factor of music products. Texture refers to the music's timbre and orchestration (Bruner 1990; Kellaris & Kent 1993). Timbre is the difference in sound between instruments, while orchestration is the configuration of instruments utilized in a composition (Dowling & Hardwood 1986; Kellaris & Kent 1993). These elements which make up music texture have been stated to shape responses to music (Cooke 1959; Gundlach 1935). Texture, however, is complex and offers countless combinations of timbre and orchestration. In order to classify different types of orchestration and timbre, music has been classified into groups which have common characteristics, known as musical genre (Tzanetakis & Cook 2002). For example, in the rock genre, electric guitars may heavily influence music texture; while in the hip-hop genre, 808 drums may be more prominent in music texture. Musical genre is thus a categorical variable which reflects the textural characteristics of music products.

Consistent with this logic, music technicians have utilized texture to classify musical genre (e.g. Tzanetakis & Cook 2002; Xu et al. 1998). Genre thus can be utilized to indicate musical texture; and since texture has been stated to influence consumer mood and behavior (Bruner 1990); we propose that musical genre influences commercial performance.

H3: Musical genre significantly influences commercial performance

3 Methods

To empirically test the hypotheses, two samples were collected. The following sections describe each sample and the analyses conducted.

3.1 Sample 1

Data for sample 1 was collected for successful songs in the Billboard chart era. The #1 song in the United States each year since the Billboard era started (1958-2015) was collected; which yielded a sample of 58 observations. In order to determine song key, a professional musician was asked to name the key of each song, and to classify each song to be either in major or minor key. Each observation was thus coded 1 for minor key and 2 for major key.

The tempo for each song was collected from a database constructed by the University of British Columbia's Department of Computer Science; which includes the tempo information for each song (Tompkins 2013). This database only consisted of songs up until 2013, thus the tempo for the top songs for 2014 and 2015 were taken from songbpm.com. Since there is hypothesized to be a curvilinear relationship between song tempo and performance, a quadratic term for tempo was computed.

The billboard information for each song's genre was utilised to classify the songs into their respective genres. There were 7 categories for genre: pop, rock, hip-hop, country, R&B, and jazz. 7 binary variables were included to represent genre. Specifically, a variable was created for each genre where observations that represented the genre was coded 1, while the rest of the observations were coded 0. So, for example,

for the Hip-Hop genre variable, all observations that were in the Hip-Hop genre were coded 1, while the rest were coded 0.

	Frequency	Percent	
Key			
G	9	15.5	
A	6	10.3	
C	5	8.6	
D Minor	5	8.6	
E Flat	5	8.6	
F	5	8.6	
B	4	6.9	
A Flat	3	5.2	
B Flat	3	5.2	
D	3	5.2	
A Minor	2	3.4	
C Minor	2	3.4	
F Minor	2	3.4	
A Flat Minor	1	1.7	
C Sharp	1	1.7	
E Flat Minor	1	1.7	
F Sharp	1	1.7	
Artist Classification			
Individual Male	22	37.9	
Male Group	16	27.6	
Individual Female	12	20.7	
Mixed Group	6	10.3	
Female Group	2	3.4	
Genre			
Pop	25	43.1	
Rock	15	25.9	
R&B	8	13.8	
Hip-Hop	6	10.3	
Country	2	3.4	
Classical	1	1.7	
Jazz	1	1.7	
Tempo			
Minimum	-	-	83.9
Maximum	-	-	171.5
Mean	-	-	118.97
Standard Deviation	-	-	22.1

Table 1: Descriptive Statistics of Sample 1 (n=58)

The number of weeks each song spent at #1 was utilized as the dependent variable as a measure of commercial success. Before the data was analysed, we made some initial observations. First, 14 songs were number 1 on the charts for 10 weeks or more during the Hot 100 era, and of those 14 songs, 10 were either in the key of G or they were in a minor key. Second, the key of G is the most common exact key with 9 of the 58 songs, however, the key of A is actually the most common form with 12 of the 58 total songs if A, A Flat, A Minor, and A Flat Minor are included. Third, 13 of the 58 songs examined were in a minor key instead of major; thus, there are certainly more songs in major key that have been the top songs of the year they were released than in minor key. Finally, the most common genre was pop, with 25 of the 58 songs fitting in the pop genre. These observations are shown in table 1.

Analyses. A Poisson regression in SPSS 23 was conducted to predict the number of weeks a song spent at #1 based on genre, music key, and tempo. For tempo, both the linear and quadratic terms were included as predictors. The results showed that song key and genre had significant effect on the weeks the songs spent at #1, yet tempo did not significantly influence this dependent variable. As shown in table 2, the results provide evidence that songs in minor keys spent significantly more time at #1 than those in major keys, and songs in the R&B genre spend significantly more time at #1, while Jazz songs spend less time (more on this next) than the genre of reference (Pop). These findings show support for H3, but not H1 nor H2. In fact, the results actually show the opposite of what is proposed in H2. Since the hypothesised relationship for H1 is proposed to be curvilinear, a curve estimation was conducted for a linear and quadratic curve on the effect of tempo on weeks spent at #1. The regression estimation results showed no significance, therefore no support for H1 was found.

To further investigate the relationships, two analyses of variance (ANOVA) were conducted since the nature of the song key and genre variables were categorical. The first ANOVA was conducted to test if there was a difference in weeks spent at #1 between songs with minor and major keys. The results showed that song key significantly influ-

enced weeks spent at #1, F (1, 56) = 3.67, p= .10. The mean for minor key songs for weeks spent at #1 were higher than the means for major keys. This again provides support that songs in minor keys stay longer at #1 than songs in major keys. The ANOVA results are shown in table 3, and the means are shown in table 4.

					Confidence Interval	
		B Coefficient	Standard Error	Exponentiated Coefficient [Exp(B)]	Lower	Upper
Song Key	Minor Keys	-0.36*	0.15	0.7	0.52	0.94
	Major Keys	0	-	1	-	-
Tempo	Tempo (linear)	0.002	0.002	1.002	1.00	1.01
	Tempo (Quadratic)	-0.02	0.03	0.98	0.93	1.03
	Classical	0.41	0.35	1.51	0.75	3.02
	Country	0.05	0.33	1.05	0.55	2.02
	Hip-Hop	-0.01	0.19	0.99	0.68	1.45
	Jazz	-1.89†	1.01	0.15	0.02	1.09
	Rock	0.004	0.13	1.004	0.78	1.30
	R&B	0.51***	0.14	1.67	1.26	2.21

†p<.10, *p < .05, **p<.01, ***p<.001

Note: B Coefficients were set to 0 for those parameters that are redundant, or that were used as the base comparison for the category

Table 2: Results of Poisson regression for the effects of song key, tempo, and genre on weeks a song spends at #1

Source	*df*	*SS*	*MS*	*F*	*p*
Between groups	1	42.30	42.30	3.67	0.06
Within groups	56	647.08	11.56		
Total	57	689.38			

Table 3: One-way analyses of variance of the influence of song key on weeks a song spends at #1

	n	*M*	*SD*
Major Key	45	6.64	3.43
Minor Key	13	8.69	3.30

Table 4: Means and standard deviations for the influence of song key (major/minor) on the weeks a song spends at #1

In the second ANOVA, the effect of genre on weeks spent at #1 was tested. The results showed that genre significantly influenced weeks spent at #1, F (4, 53) = 2.66, p= .04. Tukey's HSD post hoc test was conducted to investigate which genres spent more time at #1. Results from the Tukey HSD post hoc test showed that the mean for songs in the R&B genre (M=10.13, SD= 3.68) was significantly greater than the means of songs in the pop (M= 6.44, SD= 3.68) and rock (M= 6.27, SD= 2.12) genres. None of the other genre comparisons were significant. It is important to note here that although jazz was found to be a significant predictor in the results of the Poisson regression, there was only 1 observation categorized as jazz, so this was not a significant effect in the ANOVA. Table 5 displays the ANOVA results and table 6 shows the means.

Source	*df*	*SS*	*MS*	*F*	*p*
Between groups	4	115.07	28.77	2.655	0.04
Within groups	53	574.31	10.84		
Total	57	689.38			

Table 5: One-way analyses of variance of the influence of genre on weeks a song spends at #1

	n	*M*	*SD*
Pop	27	6.44	3.68
Rock	15	6.27	2.12
Hip-Hop	6	8.67	3.56
Country	2	5.50	0.71
R&B	8	10.13	3.68

Table 6: Means and standard deviations for the influence of genre on the weeks a song spends at #1

In sum, the results of the analyses conducted on sample 1 showed that (1) tempo does not influence the weeks each song spent at #1, (2) songs in minor keys spend more time at #1 than songs in major keys,

which is the opposite of what was hypothesized, and (3) and genre has an influence on the number of weeks each song spent at #1. It is important to note that within this current paper, the ANOVA results are supplementary to the regression results since ANOVAs only consider one covariate at a time, while the regression analysis considers multiple covariates.

These results, however, may be influenced by the limitations of the data collected. Specifically, there were only 58 songs from each of the 58 years. This shows small variance in the tempo variable. Similarly, a large number of the songs were in the pop genre, and only 1 was in the jazz genre. Finally, performance was measured only with the number of weeks spent at #1; however, other measures such as weeks spent total on the charts and peak positions for songs that did not hit #1 may also be appropriate measures of performance. Thus, a second sample was collected to address these issues.

3.2 Sample 2

Results from Sample 1 provide some evidence for the premise that specific music characteristics influence commercial performance. However, sample 1 has several limitations. First, it is a relatively small sample. There were only 13 observations with songs in minor key, and there was a large percentage of the sample in the pop category. Second, the songs were taken from a period of 58 years. Trends, sounds, and preferences may have changed throughout these years. Finally, sample 1 had only one measure for performance. Measures such as peak position on the charts (which may not be #1) and longevity on the charts may also be influenced by song characteristics. In order to address these issues, data on the top 100 songs of 2012 and 2013 in the United States, as ranked by Billboard, were collected. Duplicates of songs that appeared in both years were eliminated. Songs from 2012 and 2013 were selected to ensure that each song has gone through the product life cycle. The exact tempo for each song was collected from a database constructed by the University of British Columbia's Department of Computer Science; which includes the tempo information for each song (Tompkins 2013).

	Frequency	Percent	
Control variables			
Artist Classification			
Male	64	47.4	
Female	34	25.2	
Male Group	31	23.0	
Male/Female Group	5	3.7	
Female Group	1	.7	
Label			
Universal Music Group	59	43.7	
Sony Music Entertainment	46	34.1	
Warner Music Group	21	15.6	
Independent	9	6.7	
Predictor variables			
Genre			
Pop	48	35.6	
Country	22	16.3	
Rock	22	16.3	
Dance	19	14.1	
R&B	13	9.6	
Hip-Hop	11	8.1	
Song Key			
Major	76	56.3	
Minor	59	43.7	
Tempo			
Minimum	-	-	60
Maximum	-	-	155
Mean	-	-	107.29
Standard Deviation	-	-	23.95

Table 7: Descriptive statistics for sample 2 (n=135)

Since H1 states that the relationship between tempo and song success is curvilinear (inverted U-shape), the quadratic term for tempo was calculated. Data on whether each song was in major or minor chord was collected from www.e-chords.com. As was done in sample 1, minor key songs were coded as 1 and major key was coded as 2. Data for the genre of each song was collected from Billboard's website. Genre was collected as a categorical variable. As was done for sample 1, binary variables were included to represent genre. Specifically, a variable was created for each genre where observations that represented the genre was coded 1, while the rest of the observations were coded 0. Songs that did not have tempo information in the database were eliminated. For dependent variables, the peak chart position and number of weeks spent on the charts were collected for each song from Billboard's website. Finally, observations with missing data were deleted. The final sample yielded 135 usable observations. Table 7 shows the descriptive statistics.

Along with the independent and dependent variables, control variables were also collected for this sample. First, each observation was classified into an artist classification: individual male, individual female, male group, female group, and mixed group. This was done because the type of artist that sings the song may influence commercial performance. Second, the parent record label for each song's artist were recorded. The classifications were Sony Music Entertainment, Warner Music Group, Universal Music Group, or an Independent label. This was done because different labels may have different marketing strategies for their artists and songs.

Analyses. As was done for sample 1, a Poisson regression in SPSS 23 was conducted to predict the number of weeks a song spent on the charts based on genre, music key, and tempo. For tempo, both the linear and quadratic terms were included as predictors. The results of this analysis showed that (1) songs in minor keys spent more time on the charts than songs in major keys, (2) genre (country, hip-hop, rock, and R&B) decrease longevity on the charts, and (3) tempo has no influence on a song's longevity on the charts. These findings support H3, but not

H1 nor H2. As was in sample 1, the opposite of H2 was found. Table 8 shows the results.

		B Coefficient	Standard Error	Exponentiated Coefficient [Exp(B)]	Confidence Interval	
					Lower	Upper
Control variables						
Label	Warner Music Group	0	-	1	-	-
	Sony Music Entertainment	-0.14**	0.05	0.87	0.78	0.96
	Universal Music Group	-0.06	0.05	0.94	0.85	1.04
	Independent	0.38***	0.08	1.46	1.26	1.70
Artist Classification	Individual Male	0	-	1	-	-
	Individual Female	-0.11*	0.05	0.9	0.81	1
	Male Group	.31***	0.06	1.36	1.22	1.52
	Female Group	-0.70**	0.23	0.5	0.32	0.79
	Mixed Group	.20*	0.09	1.22	1.01	1.46
Predictor variables						
Song Key	Minor Keys	0	-	1	-	-
	Major Keys	-0.08*	0.04	0.93	0.87	0.99
Tempo	Tempo (linear)	-0.01	0.01	0.99	0.98	1.01
	Tempo (Quadratic)	0.00002	0.00003	1	1.00	1.00
	Country	-0.48***	0.06	0.62	0.55	0.7
	Dance	-0.03	0.06	0.97	0.87	1.09
	Hip-Hop	-0.23*	0.07	0.80	0.69	0.92
	Rock	-0.12†	0.07	0.89	0.78	1.01
	R&B	-0.23**	0.07	0.80	0.69	0.91

†p<.10, *p < .05, **p<.01, ***p<.001

Note: B Coefficients were set to 0 for those parameters that are redundant, or that were used as the base comparison for the category

Table 8: Results of Poisson regression for the effects of song key, tempo, and genre on weeks a song spends on the charts

An ordinal regression analysis in SPSS 23 was conducted to test the effect of genre, tempo, and song key on chart peak position. An ordinal regression was selected as the appropriate method because the dependent variable is a rank on the Billboard charts, not a continuous variable. For tempo, both the linear and quadratic terms were computed and included in the analysis. The dependent variable representing chart peak position was subtracted from 100 since a lower chart number indicated higher success. For example, if a chart position was 1, then it was subtracted from 100, and was entered as 99; conversely, if the chart position was 99, then it was subtracted from 100 and was entered as 1. The results yielded a significant model with R-Square (Nagelkerke) = 0.31, p<.001. The parameter estimates showed no significant effect of tempo nor song key on the peak chart position, providing no support for H1 nor H2. Genre was found to influence chart position. Specifically, the

probability of a country song to reach higher positions is less than the base or reference case, supporting H3. Table 9 displays these results.

		Estimates	Standard Error
Control variables			
Label	Warner Music Group	-0.97	0.77
	Sony Music Entertainment	-1.38†	0.76
	Universal Music Group	-1.08	0.70
	Independent	0	-
Artist Classification	Individual Male	1.50†	0.86
	Individual Female	1.70†	0.90
	Male Group	1.37	0.90
	Female Group	-0.2	2.08
	Mixed Group	0	-
Predictor variables			
Song Key	Minor Keys	-0.02	0.33
	Major Keys	0	-
Tempo	Tempo (linear)	-0.02	0.06
	Tempo (Quadratic)	0.00	0.00
	Country	-3.70†	1.95
	Dance	-1.08	1.92
	Hip-Hop	-1.76	1.96
	Pop	-0.87	1.87
	Rock	-1.41	1.97
	R&B	-2.17	1.94

†p<.10, *p < .05, **p<.01, ***p<.001

Notes: B Coefficients were set to 0 for those parameters that are redundant, or that were used as the base comparison for the category; The DV Peak Chart Position was reverse coded (100-x) since lower chart value indicated higher commercial success

Table 9: Results of ordinal regression for the effects of song key, tempo, and genre on chart peak position

In sum, the results of the analyses from both samples provide evidence that tempo does not predict any measure of commercial performance. For songs that reach #1, song key influences how long the song stays at #1; however, songs in minor keys have stronger longevity at #1 than songs in major keys. Similarly, song key influences the longevity on the overall charts, however, minor keys have greater longevity. Song key does not influence peak chart position. Genre was found to influence longevity at the #1 spot for songs that reached #1, longevity on the overall charts, and overall peak position. However, there are different genres that may be more successful in each measure of performance.

These findings induce implications for music marketing managers, as discussed in the following section.

4 Discussion

Within the music industry, certain songs such as Kanye West's "Stronger" peak at the top of the charts yet don't have much longevity on the charts (7 weeks). Other songs such as West's "All of the Lights" don't peak very high on the charts (#18 peak), but spend longer periods on the charts (25 weeks) (Billboard 2016). The product life cycle for songs thus may range from high peak/low longevity to low peak/high longevity, and everything in between. When selecting singles to promote artists and albums, music marketing managers thus need to be aware of the factors which influence peak and longevity on the charts. The research reported here provides insight into one aspect which affects peak and longevity: song product characteristics.

The findings of this research provide a perspective into music product management that has previously been ignored. This paper proposes that individual songs are products that have specific characteristics which influence consumer behavior. The empirical analyses from this current paper show that tempo has no influence on commercial performance, song key influences longevity on the charts, and genre influences both peak and longevity on the charts. These findings induce several theoretical contributions to music marketing research and also several strategic implications for music management, as discussed below.

4.1 Theoretical contributions

In his impactful research, Bruner (1990) theoretically proposes that the time-related, pitch-related, and texture-related characteristics of music influence consumer moods. Similarly, Alpert and Alpert (1990) state that music characteristics influence behavior. From these theoretical foundations, business research has examined the effect of music in different circumstances such as retail environmental settings (e.g. Baker et al. 1992), buyer-seller interactions (e.g. Dubé et al. 2005), product

presentation (e.g. Park et al. 2005), and advertisements (Alpert et al. 2005). These previous research papers view music as a peripheral cue which affects a central stimulant such as an advertisement or product presentation. However, within this current paper, we depart from the view that music is a peripheral cue and focus on music as a consumer product which has specific characteristics. Thus, we contribute to music research by finding how tempo, song key, and genre influence difference aspects of performance.

In terms of tempo, the findings indicate that there is no relationship between tempo and commercial performance. This finding is surprising since tempo is known to influence consumer behavior. One possible explanation of this finding is that perhaps a majority of the songs in the samples collected fell within the preferred tempo, and therefore no significant effects were found due to lack of variance in tempo. Specifically, the tempo of songs is sample 1 ranged from 83.9bpm to 171.5bpm with a standard deviation of 22.1, and the tempo of songs in sample 2 ranged from 60bpm to 155bpm with a standard deviation of 23.95. This indicated that a majority of the songs may have had preferred tempo, and therefore, there was not much variance in this variable. We encourage future research to further explore the effect of tempo on commercial performance by examining songs that may not have been on the billboard charts in contrast to those that were, and testing differences in tempo.

In terms of song keys, the results of this study indicate that songs in minor keys remain longer in their peak position and on the overall charts than those in major keys, thus contradicting the stance that songs in major keys are more successful. This finding indicates that songs in minor key may actually have a stronger resonance with consumers than songs in major keys. Thus, songs which may evoke less happy emotions may actually resonate better with consumers than songs that evoke happy emotions. This is an interesting outcome given marketing research typically states that products which evoke happy emotions tend to positively influence commercial performance (Adaval 2003; Meloy

2000; Mogilner et al. 2012). We encourage future research to further explore the dynamic of song key and commercial performance.

With respect to genre, the findings provide evidence that certain genres actually spend more weeks at #1, more weeks on the overall charts, and have higher chart peak positions. These genres however were different for each measure of performance. This finding indicates that song texture influences commercial performance, and different genres influence different measures of performance. We invite future research to further explore this dynamic.

It is important to note that this research does not state that tempo, song key, and genre is the formula for hit records. Instead, this research takes an inside perspective of music as a manageable product with characteristics that do influence the product's commercial performance. Thus, the findings show that different characteristics influence different aspects of performance. These findings induce several managerial implications.

4.2 Managerial implications

The goal of this research is to provide insight into which song characteristics influence commercial performance to offer insight to managers seeking to answer the question of which songs to promote as singles. The findings of this research imply that managers should focus on different characteristics when aiming for different commercial results.

Overall, it can be stated that song key and genre all influence commercial performance in some way, however, each element may influence a different aspect of commercial performance. Although this research does not solve the complete question of what makes a hit record, we provide an avenue for discussion within music research on a perspective of song success. This study, however, is not void of limitations, which provides future research with opportunities for discovery and investigation.

4.3 Limitations and future research

Several limitations in this study provide opportunities for future research. First, the size of sample 1 was relatively small. Future research should further explore how song characteristics influence longevity at the #1 spot. Second, future research should further explore the relationship between tempo and song success. Tempo was found to not have an effect on commercial performance, however, the variance in tempo may have been limited in the samples of this research. Finally, future research should investigate the relationship between song key and performance. This study found that songs in minor keys have longer runs at #1 than songs in major keys, and future research should investigate why songs which evoke sad emotions have longer runs at the #1 spot than songs that evoke happy emotions.

5 Conclusion

This current paper conceives a conversation that takes the perspective of music as a consumer product that is composed of different characteristics. In the long run, this stream of research should further explore other song characteristics which may influence commercial performance in order to shed light onto the key question of what causes songs to be successful. The findings of this current study not only provide theoretical advances to music marketing theory but also provide guidance to music marketing managers seeking to select songs to promote. Thus, this paper provides insight into the phenomenon known as a hit record.

6 References

Adaval, R. (2003) "How Good Gets Better and Bad Gets Worse: Understanding the Impact of Affect on Evaluations of Known Brands," Journal of Consumer Research, vol. 30, no. 3, pp. 352-367.

Alpert, J. I. & Alpert, M. I. (1990) "Music Influences on Mood and Purchase Intentions," Psychology & Marketing, vol. 7, no. 2, pp. 109-133.

Alpert, M. I., Alpert, J. I. & Maltz, E. N. (2005) "Purchase Occasion Influence on the Role of Music in Advertising," Journal of Business Research, vol. 58, no. 3, pp. 369-376.

Appleyard, M. (2015) "Corporate Responses to Online Music Piracy: Strategic Lessons for the Challenge of Additive Manufacturing," Business Horizons, vol. 58, no. 1, pp. 69-76.

Baker, J., Levy, M. & Grewal, D. (1992) "An Experimental Approach to Making Retail Store Environmental Decisions," Journal of Retailing, vol. 68, no. 4, pp. 445-460.

Baltas, G. & Saridakis, C. (2009) "Brand-Name Effects, Segment Differences, and Product Characteristics: An Integrated Model of the Car Market," Journal of Product & Brand Management, vol. 18, no. 2, pp. 143-151.

Bendapudi, N., Singh, S. N. & Bendapudi, V. (1996) "Enhancing Helping Behavior: An Integrative Framework for Promotion Planning," Journal of Marketing, vol. 60, no. 3, pp. 33-49.

Billboard (2016) "Kanye West," available at http://www.billboard.com/search/site/kanye%20west (accessed 15 September 2016).

Bruner, G. C. (1990) "Music, Mood, and Marketing," Journal of Marketing, vol. 54, no. 4, pp. 94-104.

Caldwell, C. & Hibbert, S. A. (1999) "Play That One Again: The Effect of Music Tempo on Consumer Behaviour in a Restaurant," European Advances in Consumer Research, vol. 4, pp. 58-62.

Caldwell, C. & Hibbert, S. A. (2002) "The Influence of Music Tempo and Musical Preference on Restaurant Patrons' Behavior," Psychology & Marketing, vol. 19, no. 11, pp. 895-917.

Caulfield, K. (2015) "Drake Has First Million-Selling Album Released in 2015," Billboard, available at http://www.billboard.com/articles/columns/chart-beat/6656838/drake-million-selling-album-if-youre-reading-this (accessed 28 December 2015).

Chebat, J. C., Chebat, C. G. & Vaillant, D. (2001) "Environmental Background Music and In-Store Selling," Journal of Business Research, vol. 54, no. 2, pp. 115-123.

Clynes, M. & Nettheim, N. (1982) "The Living Quality of Music," in Music, Mind, and Brain, ed M. Clynes, Springer, US, pp. 47-82.

Collyer, C. E., Broadbent, H. A. & Church, R. M. (1994) "Preferred Rates of Repetitive Tapping and Categorical Time Production," Perception & Psychophysics, vol. 55, no. 4, pp. 443-453.

Cooke, D. (1959) "The Language of Music," in Tempo, eds A. Hutchings, Oxford University Press, London, UK, pp. 89-90.

Dowling, W. J. & Hardwood, D. L. (1986) Music Cognition, Academic Press, Orlando, FL.

Dubé, L., Chebat, J. C. & Morin, S. (1995) "The Effects of Background Music on Consumers' Desire to Affiliate in Buyer-Seller Interactions," Psychology & Marketing, vol. 12, no. 4, pp. 305-319.

Dubé, L. & Morin, S. (2001) "Background Music Pleasure and Store Evaluation: Intensity Effects and Psychological Mechanisms," Journal of Business Research, vol. 54, no. 2, pp. 107-113.

Dunbar, D. S. (1990) "Music and Advertising," International Journal of Advertising, vol. 9, no. 3, pp. 197-203.

Elberse, A. (2010) "Bye-Bye Bundles: The Unbundling of Music in Digital Channels," Journal of Marketing, vol. 74, no.3, pp. 107-123.

Fraisse, P. (1982) "Rhythm and Tempo," in The Psychology of Music, ed D. Deutsch, Academic Press, New York, NY, pp. 149-180.

Gardner, M. P. (1985) "Mood States and Consumer Behavior: A Critical Review," Journal of Consumer Research, vol. 12, no. 3, pp. 281-300.

Garlin, F. V. & Owen, K. (2006) "Setting the Tone with the Tune: A Meta-Analytic Review of the Effects of Background Music in Retail Settings," Journal of Business Research, vol. 59, no. 6, pp. 755-764.

Gorn, G. J. (1982) "The Effects of Music in Advertising on Choice Behavior: A Classical Conditioning Approach," The Journal of Marketing, vol. 46, no. 1, pp. 94-101.

Gundlach, R. H. (1935) "Factors Determining the Characterization of Musical Phrases," The American Journal of Psychology, vol. 47, no. 4, pp. 624-643.

Hanna, R., Rohm, A. & Crittenden, V. L. (2011) "We're All Connected: The Power of the Social Media Ecosystem," Business Horizons, vol. 54, no. 3, pp. 265-273.

Hellén, K. & Sääksjärvi, M. (2011) "Is Consumer Self-Confidence a Stable Phenomenon? The Effect of Mood on Self-Confidence Dimensions," Journal of Customer Behaviour, vol. 10, no. 3, pp. 223-243.

Hevner, K. (1935) "The Affective Character of the Major and Minor Modes in Music," The American Journal of Psychology, vol. 47, no. 1, pp. 103-118.

Husain, G., Thompson, W. F. & Schellenberg, E. G. (2002) "Effects of Musical Tempo and Mode on Arousal, Mood, and Spatial Abilities," Music Perception: An Interdisciplinary Journal, vol. 20, no. 2, pp. 151-171.

IFPI (2005) "The Recording Industry World Sales," International Federation of Phonographic Industry, available at < http://www.ifpi.org/content/library/worldsales2004.pdf> (accessed 2 January 2016).

IFPI (2015) "Global Recorded Music Sales Totaled US $15 billion in 2014," Global Statistics, available at <http://www.ifpi.org/global-statistics.php> (accessed 1 January 2016).

Kaplan, A. M. & Haenlein, M. (2012) "The Britney Spears Universe: Social Media and Viral Marketing at Its Best," Business Horizons, vol. 55, no. 1, pp. 27-31.

Kellaris, J. J. & Cox, A. D. (1989) "The Effects of Background Music in Advertising: A Reassessment," Journal of Consumer Research, vol. 16, no. 1, pp. 113-118.

Kellaris, J. J. & Kent, R. J. (1993) "An Exploratory Investigation of Responses Elicited by Music Varying in Tempo, Tonality, and Texture," Journal of Consumer Psychology, vol. 2, no. 4, pp. 381-401.

Krishnan, V., Kellaris, J. J. & Aurand, T. W. (2012) "Sonic Logos: Can Sound Influence Willingness to Pay?" Journal of Product & Brand Management, vol. 21, no. 4, pp. 275-284.

Lyubomirsky, S. (2001) "Why are Some People Happier than Others? The Role of Cognitive and Motivational Processes in Well-Being," American Psychologist, vol. 56, no. 3, pp. 239-249.

Mangold, W. G. & Faulds, D. J. (2009) "Social Media: The New Hybrid Element of the Promotion Mix," Business Horizons, vol. 52, no. 4, pp. 357-365.

Meloy, M. G. (2000) "Mood-Driven Distortion of Product Information," Journal of Consumer Research, vol. 27, no. 3, pp. 345-359.

Meyer, L. B. (1956) Emotion and Meaning in Music, University of Chicago Press, Chicago, IL.

Milliman, R. E. (1982) "Using Background Music to Affect the Behavior of Supermarket Shoppers," Journal of Marketing, vol. 46, no. 3, pp. 86-91.

Moelants, D. (2002) "Preferred Tempo Reconsidered," Proceedings of the 7th International Conference on Music Perception and Cognition, July 2002, pp. 580-583.

Mogilner, C., Aaker, J. & Kamvar, S. D. (2012) "How Happiness Affects Choice," Journal of Consumer Research, vol. 39, no. 2, pp. 429-443.

Morrison, M. & Beverland, M. (2003) "In Search of the Right In-Store Music," Business Horizons, vol. 46, no. 6, pp. 77-82.

Morrison, M., Gan, S., Dubelaar, C. & Oppewal, H. (2011) "In-Store Music and Aroma Influences on Shopper Behavior and Satisfaction," Journal of Business Research, vol. 64, no. 6, pp. 558-564.

Park, J., Lennon, S. J. & Stoel, L. (2005) "On-Line Product Presentation: Effects on Mood, Perceived Risk, and Purchase Intention," Psychology & Marketing, vol. 22, no. 9, pp. 695-719.

Poon, S. & Joseph, M. (2000) "Product Characteristics and Internet Commerce Benefit Among Small Businesses," Journal of Product & Brand Management, vol. 9, no. 1, pp. 21-34.

Roballey, T. C., McGreen, C., Rongo, R.R., Schwantio, M. L., Stiger, P. J., Winnger, M. A. & Gardener, E. B. (1985) "The Effect of Music on Eating Behavior," Bulletin of the Psychometric Society, vol. 23, no. 3, pp. 221-222.

Seidman, S. A. (1981) "On the Contributions of Music to Media Productions," ECTJ, vol. 29, no. 1, pp. 49-61.

Sinha, R. K. & Mandel, N. (2008) "Preventing Digital Music Piracy: the Carrot or the Stick?" Journal of Marketing, vol. 72, no. 1, pp. 1-15.

Spangenberg, E. R., Grohmann, B. & Sprott, D. E. (2005) "It's Beginning to Smell (and Sound) a Lot Like Christmas: the Interactive Effects of Ambient Scent and Music in a Retail Setting," Journal of Business Research, vol. 58, no. 11, pp. 1583-1589.

Sudler, H. (2013) "Effectiveness of Anti-Piracy Technology: Finding Appropriate Solutions for Evolving Online Piracy," Business Horizons, vol. 56, no. 2, pp. 149-157.

Tompkins, D. (2013) "Music Database." Music Database :: Dave Tompkins. University of British Columbia, available at http://www.cs.ubc.ca/~Davet/music/index.html (accessed 2 January 2016)

Van Noorden, L. & Moelants, D. (1999) "Resonance in the Perception of Musical Pulse," Journal of New Music Research, vol. 28, no. 1, pp. 43-66.

Tzanetakis, G. & Cook, P. (2002) "Musical Genre Classification of Audio Signals," Speech and Audio Processing, IEEE transactions on, vol. 10, no. 5, pp. 293-302.

Yalch, R. F. & Spangenberg, E. R. (2000) "The Effects of Music in a Retail Setting on Real and Perceived Shopping Times," Journal of Business Research, vol. 49, no. 2, pp. 139-147.

Xu, C., Maddage, N. C., Shao, X., Cao, F. & Tian, Q. (2003) "Musical Genre Classification Using Support Vector Machines," Acoustics, Speech, and Signal Processing, 2003 Proceedings, vol. 5, pp. V-429.

Zhu, F. & Zhang, X. (2010) "Impact of Online Consumer Reviews on Sales: The Moderating Role of Product and Consumer Characteristics," Journal of Marketing, vol. 74, no. 2, pp. 133-148.