

New Station 

0:36

-2:54

Shots  
By LMFAO  
On Party Rock

[Now Playing](#) [Music Feed](#) [My Profile](#)

Shuffle


MSU Radio

WACC Radio

Valuation Radio

add variety

options »






Pandora Radio

FBE 421 Final Project

***Pandora:  
The Money Does Not Stream  
As Well As The Music***

USC  
UNIVERSITY  
OF SOUTHERN  
CALIFORNIA


Pandora for your   

By:

Damir Becirovic  
Greg Bumstead  
Abby Chao  
Arjun Chaurushia  
Priscilla Lee

Your Ad Here


GRAB A DRINK  
WITH THE BOSS AFTER WORK.  
**PERFECT.**





HAND-SELECTED 100% WHEAT BLUE AGAVE. THE WORLD'S FINEST ULTRA-PREMIUM TEQUILA.

**SIMPLY PERFECT.**

Games You Didn't Know Existed  
to Fight Brain Decline and Aging.  
[www.lumosity.com](http://www.lumosity.com)



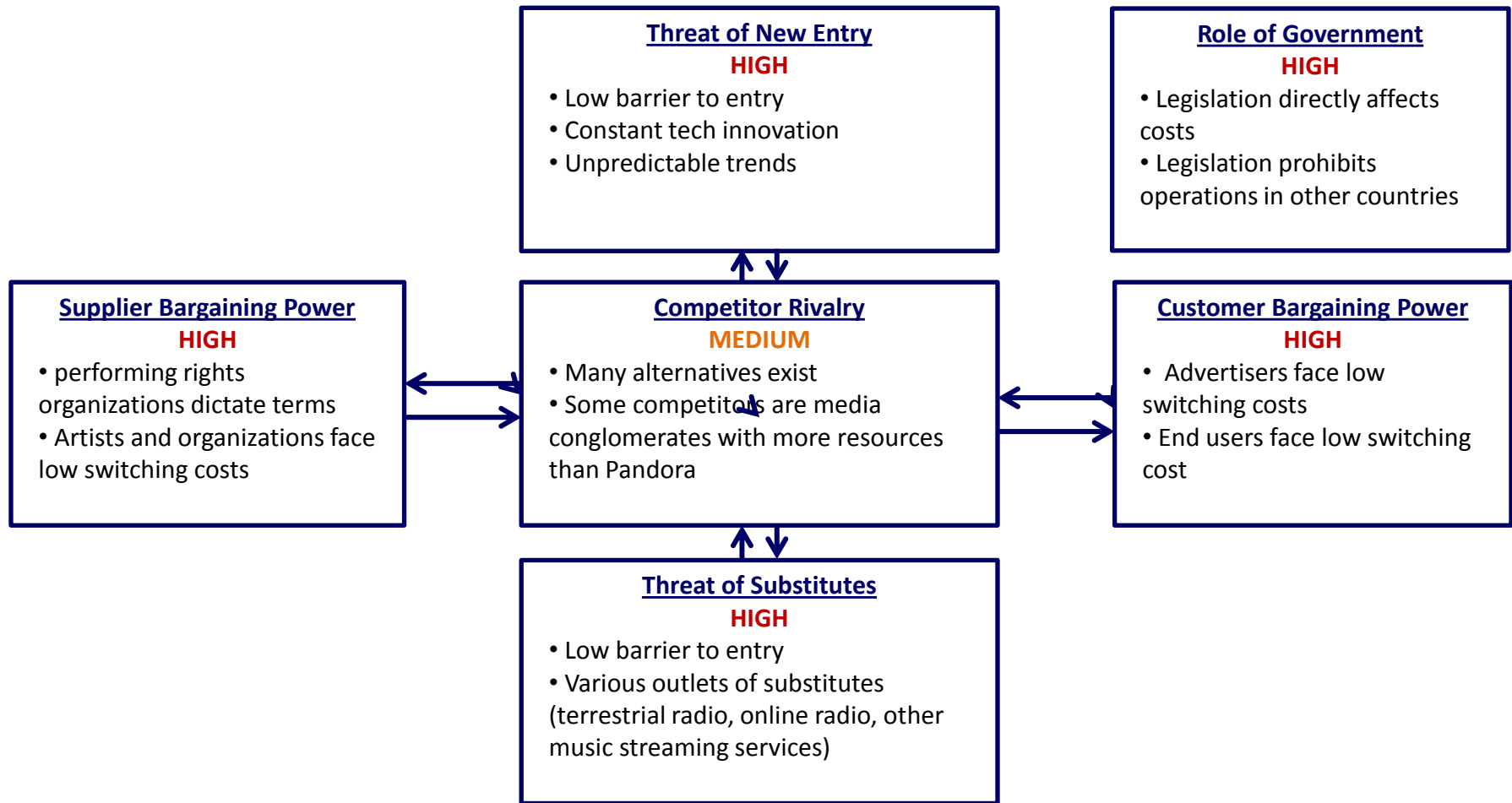
Log onto [EarthShare.org](http://EarthShare.org)  
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One environment. One simple way to care for it.®

why ads? skip

- **Our firm should not invest in Pandora**, in a controlling or non-controlling stake.
- **Pandora is the leader of an unattractive industry** that faces oppressive costs, limited consumer loyalty, and high regulatory uncertainty. Spotify represents a fast-growing threat, and competitors owned by major media players are more able to absorb unfavorable cost structures. Demand for internet radio is undoubtedly rising, but the economics of the business suggest that even winners may be losers.
- **Intrinsic valuation shows there is little room to pay a purchase premium and still earn attractive returns.** Even if we assume that Pandora will significantly increase ad inventory (with user growth and increased ad load) and improve sell-through rates, DCF valuation shows **Pandora's intrinsic value is only \$12.07 per share**, which represents approximately a 50% premium to \$7.95, the share price as of 12/11/2012.
- Market-based valuations are even more pessimistic. Comparable company analysis suggests that Pandora is worth only \$8.75 per share. Precedent transactions imply a share price of \$10.24 per share.
- Strategic acquisition could potentially drive compelling returns, but most major media companies already own similar assets. Pandora would likely demand a large purchase premium considering its historical growth, which means that the buyer would need to see significant potential synergies – most likely from cross-selling to Pandora's user base. As a financial buyer, however, we would not be able to realize any potential synergies.

# Pandora competes in a difficult industry



Pandora currently operates in a hostile environment. As shown by this Porter's five forces analysis, Pandora is plagued by many external issues. Although there is no major player operating in the internet radio industry, similar industries in terrestrial radio, media conglomerates and the like compete directly with Pandora. Given the pressuring external forces listed above, Pandora will be fighting an uphill battle in its quest to be profitable.

# Additional Industry Factors to Consider



## Royalty Rates Lobbying

According to an industry expert with experience in the music and digital content industries, Pandora is **unlikely to successfully lobby for lower royalty rates**. One major reason is that these rates are historical and as the only party interested in lowering this rate (**no other media company has stepped forward to join Pandora's lobbying efforts**) Congress is rather unlikely to act on Pandora's behalf. Some potential effects of not being able to renegotiate these rates are:

- Continued constrictive costs to Pandora
- Pandora may need to adopt a new business model
- Worsening of Pandora's relationship with artists and rights organizations

## Potential Industry Restructure

Sony has been hinting at leaving the rights organizations ASCAP and BMI for a few months now. The repercussions of this would be that other digital music libraries may follow suit and ultimately cut out the middlemen that are these agencies. This can affect Pandora in a few ways:

- Pandora would need to adopt a new distribution channel and get the music directly from studios or other companies with these music libraries
- Pandora would need to renegotiate with each of these music library parties to get their content – leading to less bargaining power for Pandora and potentially higher royalty rates than they currently pay now
- Pandora would compete more directly with these large terrestrial radio and media conglomerates as they have more resources and better relationships with these studios and music companies

Restructuring of the music industry could be slightly beneficial to Pandora in increasing barriers to entry, since the other players would face similar hurdles when renegotiating the right to play this content. In fact, Sony's proposed departure has delayed Apple from creating a "Pandora-killer" (as the media dubs it) due to negotiations going south with Sony demanding more money for its music library. If both of these events were to occur, Pandora would be in a tough position to compete with the other players in the realm of music streaming as a possible failed lobbying would lower Pandora's potential to generate future profits and industry restructuring could mean even higher costs for the same content as Pandora would need to cut separate deals with all of the music libraries.

# Competitive dynamics threaten Pandora's active user base, a key value driver



While Pandora is the leader in internet radio, its position is threatened by a number of factors:

- Growth of other internet radio providers
- Entry into internet radio by terrestrial radio providers
- Development of internet radio services by providers of substitute services



## **Growth of other internet radio providers**

- We do not think Pandora's Music Genome Project is a strong differentiator
- However, the user experience does not differ materially across services
- Relative to other internet radio providers, then, Pandora has a distinct advantage in being the first mover into this space



## **Entry into internet radio by terrestrial radio providers**

- Clear Channel, in response to companies like Pandora, developed iHeartRadio to protect its ad revenues
- iHeartRadio's proliferation through automobile manufacturing contracts (e.g., the one with Ford) threatens the uniqueness of Pandora's extensive distribution



## **Development of internet radio services by providers of on-demand providers**

- Companies like Spotify are developing internet radio services, establishing themselves as full-service internet music providers

Ultimately, while current internet radio providers do not pose a significant threat to Pandora, the development of services comparable to Pandora by other players threatens Pandora's long-term growth. Pandora depends on a single service, the provision of which is hard to differentiate materially. Other companies, however, will provide a portfolio of services and therefore have the ability to capture Pandora's user base. If the threats to Pandora's user base become especially high, it would be forced to increase the ad load to compensate, jeopardizing the user experience and exacerbating the problem.

Overview

Market Methods

Intrinsic Value

Verdict

# Ad revenue and content costs drive the business model



Users listen to  
music and  
advertisements

- User streams music chosen by the algorithm known as the Music Genome Project, through channels based on artists or songs they like, and the algorithm plays songs that are similar, that the listener should like.
- Users have the option to buy a subscription for \$4 per month or \$36 per year. The subscription service eliminates all advertisements, removes the daily cap on skips, plays higher quality sound, and a few other benefits. Users who choose not to purchase a subscription have limits on their service and must listen to advertisements between some of the songs.
- Business users can purchase a Pandora subscription for as little as \$25 per month.

Pandora pays  
content owners

- Pandora pays the content owners on a per song basis. Pandora's current contract runs through 2015, and has a cost of royalties of \$.0011 for non-subscriptions and \$.0020 for subscriptions in 2012. These costs rise to \$.0014 and \$.0025 in 2015 respectively.

Pandora receives  
revenue from ads  
and subscriptions

- Pandora's revenue model comes through advertisements between songs and from paid subscriptions.
- Pandora sells advertisements between their songs at a current rate of 2 ads per hour. Their main source of cost is payment of royalties for each song played.
- Pandora also receives revenue from both personal and business users.

Overview

Market Methods

Intrinsic Value

Verdict

## PANDORA®

### Product

- Streaming only, no downloading
- Entire model is based on radio
- No offline mode
- Free mobile app

### Revenue

- Driven mostly by ad revenue
- Minimum subscription revenue from \$4 per month subscription option

### Costs

- Costs rise directly with revenue as more songs played equals more revenue and costs
- 55% of revenue pays royalty fees



### Product

- Features include: radio, building a music library, sharing through social networking sites
- Can be used offline
- Apps available in an app market
- No free mobile app

### Revenue

- Driven mostly by Subscription Revenue
- Minimum ad revenue from free service that plays advertisements between songs

### Costs

- Costs don't rise with revenue with perfect correlation. More subscribers result in more revenue, but royalty costs do not rise with each new subscription
- 98% of revenue pays royalty fees

# Comparable Companies Analysis

*There are no pure comparables for Pandora*



Overview

Market Methods

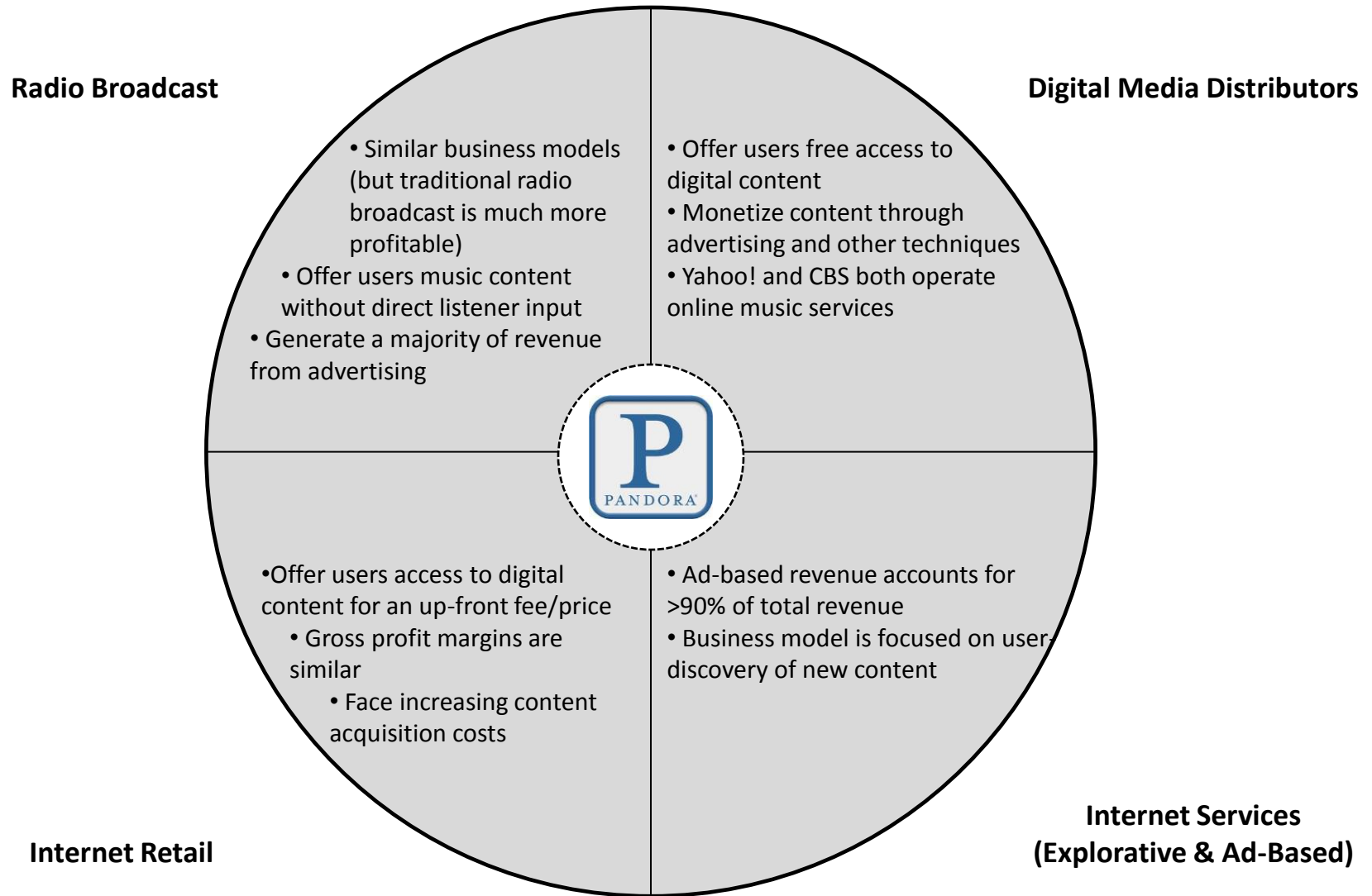
Intrinsic Value

Verdict



# Comparable Companies Analysis

*However, Pandora can be compared to companies in tangentially related industries*



Overview

Market Methods

Intrinsic Value

Verdict

# Comparable Companies Analysis



Company	Stock Price	Market Value of Equity	Enterprise Value	Financial Metric				EV as a multiple of				Total Leverage
				LTM Sales	LTM EBITDA	NTM Sales	NTM EBITDA	LTM Sales	LTM EBITDA	NTM Sales	NTM EBITDA	
(\$ in millions)												
Internet Retail												
Netflix Inc.	\$86.08	\$4,781.6	\$4,383.2	\$3,539.6	\$146.6	\$3,951.2	\$155.8	1.2	29.9	1.1	28.1	0.4
Amazon.com Inc.	\$250.69	113,552.3	108,304.3	57,256.0	2,089.0	73,291.2	4,023.5	1.9	51.8	1.5	26.9	0.0
Broadcast Radio												
SIRIUS XM Radio Inc.	\$2.73	14,215.5	16,094.0	3,293.4	1,079.9	3,720.5	1,100.0	4.9	14.9	4.3	14.6	0.4
Entercom Communications Corp.	\$6.78	249.2	842.1	382.0	104.2	391.8	114.4	2.2	8.1	2.1	7.4	0.7
Saga Communications Inc.	\$46.42	197.3	242.0	129.0	36.8	130.3	38.6	1.9	6.6	1.9	6.3	0.4
Fisher Communications Inc.	\$25.28	224.4	120.5	162.5	25.7	165.6	25.1	0.7	4.7	0.7	4.8	0.0
Nexstar Broadcasting Group Inc.	\$10.27	298.6	901.7	348.7	128.8	376.9	143.6	2.6	7.0	2.4	6.3	1.4
LIN TV Corp.	\$7.33	412.7	964.1	468.8	159.1	552.1	210.6	2.1	6.1	1.7	4.6	1.1
Cumulus Media Inc.	\$2.40	418.5	3,134.4	1,103.2	411.7	1,102.8	422.9	2.8	7.6	2.8	7.4	0.9
CC Media Holdings Inc.	\$3.40	279.3	20,129.8	6,203.3	1,800.9	6,232.9	1,840.4	3.2	11.2	3.2	10.9	1.6
Digital Media Distribution												
Yahoo! Inc.	\$19.52	23,086.1	14,755.1	4,964.9	1,321.4	4,584.5	1,748.6	3.0	11.2	3.2	8.4	0.0
Blinkx plc	\$0.60	215.5	189.6	151.8	16.5	182.5	23.3	1.2	11.5	1.0	8.1	0.0
Demand Media Inc.	\$9.10	775.2	662.2	361.9	65.2	414.6	116.3	1.8	10.2	1.6	5.7	0.0
CBS Corp.	\$35.84	22,774.5	27,754.5	14,602.0	3,420.0	15,524.1	3,790.8	1.9	8.1	1.8	7.3	0.4
Internet Services (Explorative & Ad-Based)												
Yelp Inc.	\$19.30	1,221.7	1,098.6	121.3	(11.3)	190.0	14.8	9.1	NA	5.8	74.1	0.0
Travelzoo Inc.	\$18.42	291.1	233.0	149.3	34.4	156.6	30.6	1.6	6.8	1.5	7.6	0.0
LinkedIn Corp.	\$113.45	12,190.0	11,513.4	836.4	104.1	1,302.8	303.8	13.8	110.6	8.8	37.9	0.0
Facebook Inc.	\$27.98	60,616.6	51,066.6	4,635.0	1,090.0	6,030.8	3,372.3	11.0	46.9	8.5	15.1	0.1
TripAdvisor Inc.	\$40.91	5,823.3	5,704.0	731.4	308.0	878.3	405.8	7.8	18.5	6.5	14.1	0.4
Google Inc.	\$696.88	228,990.7	192,266.7	47,543.0	15,851.0	62,724.7	20,875.7	4.0	12.1	3.1	9.2	0.1
Pandora Media Inc.	\$7.95	\$1,352.1	\$1,271.6	\$383.4	(\$24.7)	\$516.0	\$5.0	3.3	NA	2.5	253.4	0.0

Category	Weights
Internet Retail	10%
Broadcast Radio	40%
Digital Media Distribution	25%
Internet Services (Explorative & Ad-Based)	25%

## Average Weighted Multiples

High	6.3	41.7	4.9	29.3	0.9
Average	3.6	19.7	3.0	14.3	0.4
Median	3.7	14.3	3.0	11.1	0.3
Low	1.1	8.6	1.0	7.9	0.0

Implied EV using "High" multiples	\$2,426.1	NA	\$2,524.1	\$147.0
Implied EV using "Average" multiples	\$1,397.0	NA	\$1,544.2	\$71.8
Implied EV using "Median" multiples	\$1,413.9	NA	\$1,545.6	\$55.5
Implied EV using "Low" multiples	\$430.6	NA	\$533.5	\$39.4

Pandora EV: \$1,397.0 - \$1,545.6

Overview

Market Methods

Intrinsic Value

Verdict

# Performance Analysis



Company	Stock Performance			LTM Operating Results and Margins					Est. Annual Rev Growth - 1 yr (%)	EV-Rev-Growth Ratio	Beta - 2 yr
	Stock Price	52 Week High	% off 52 Week High	LTM Sales	LTM Gross Profit	LTM Gross Profit Margin	LTM EBITDA	LTM EBITDA Margin			
(\$ in millions)											
Internet Retail											
Netflix Inc.	\$86.08	\$133.4	35%	\$3,539.6	\$1,034.5	29%	\$146.6	4%	12%	10.1	0.83
Amazon.com Inc.	\$250.69	264.1	5%	57,256.0	13,591.0	24%	2,089.0	4%	29%	6.5	1.31
Broadcast Radio											
SIRIUS XM Radio Inc.	\$2.73	3.0	8%	3,293.4	2,062.9	63%	1,079.9	33%	13%	38.1	1.01
Entercom Communications Corp.	\$6.78	8.6	22%	382.0	130.4	34%	104.2	27%	1%	158.8	2.23
Saga Communications Inc.	\$46.42	48.0	3%	129.0	37.0	29%	36.8	29%	2%	124.1	1.43
Fisher Communications Inc.	\$25.28	37.4	32%	162.5	95.8	59%	25.7	16%	4%	20.4	1.04
Nexstar Broadcasting Group Inc.	\$10.27	13.0	21%	348.7	260.7	75%	128.8	37%	22%	11.8	1.58
LIN TV Corp.	\$7.33	7.5	2%	468.8	323.2	69%	159.1	34%	41%	5.0	1.92
Cumulus Media Inc.	\$2.40	4.0	39%	1,103.2	428.3	39%	411.7	37%	-5%	-57.2	0.82
CC Media Holdings Inc.	\$3.40	6.5	48%	6,203.3	3,730.4	60%	1,800.9	29%	1%	368.6	0.60
Digital Media Distribution											
Yahoo! Inc.	\$19.52	19.6	1%	4,964.9	3,421.7	69%	1,321.4	27%	3%	115.9	0.79
Blinkx plc	\$0.60	0.9	37%	151.8	76.1	50%	16.5	11%	44%	2.8	1.76
Demand Media Inc.	\$9.10	12.5	27%	361.9	189.5	52%	65.2	18%	15%	12.5	1.12
CBS Corp.	\$35.84	38.3	6%	14,602.0	6,172.0	42%	3,420.0	23%	4%	44.6	1.50
Internet Services (Explorative & Ad-Based)											
Yelp Inc.	\$19.30	32.0	40%	121.3	112.6	93%	(11.3)	-9%	NA	NA	NA
Travelzoo Inc.	\$18.42	31.7	42%	149.3	133.9	90%	34.4	23%	1%	171.4	1.61
LinkedIn Corp.	\$113.45	125.5	10%	836.4	723.0	86%	104.1	12%	82%	16.9	1.65
Facebook Inc.	\$27.98	45.0	38%	4,635.0	3,421.0	74%	1,090.0	24%	NA	NA	NA
TripAdvisor Inc.	\$40.91	47.8	14%	731.4	720.2	98%	308.0	42%	19%	40.2	NA
Google Inc.	\$696.88	774.4	10%	47,543.0	28,549.0	60%	15,851.0	33%	39%	10.5	0.98
Pandora Media Inc.	\$7.95	\$26.0	69%	\$383.4	\$123.7	32%	(\$24.7)	-6%	55%	6.1	1.17

Overview

Market Methods

Intrinsic Value

Verdict

# Precedent Transactions



Acquisitions					
Date	Acquirer	Target	Enterprise Value	LTM Sales	Revenue Multiple
10/13/2011	Microsoft Corp.	Skype Global	9,082.40	859.8	10.6
7/29/2008	Sirius Satellite Radio Inc.	XM Satellite Radio Holdings Inc	6,353.39	933.4	6.8
9/16/2011	Cumulus Media Inc.	Citadel Broadcasting Corp.	2,653.72	739.6	3.6
10/13/2012	Disney, News Corp, NBC Universal	Hulu LLC	2,000.00	420	4.8
6/30/2008	CBS Corp.	CNET Networks Inc.	1,761.00	408.2	4.3
3/17/2008	Amazon.com Inc.	Audible Inc	210.63	110	1.9
10/25/2008	Best Buy Company Inc.	Napster Inc.	69.37	125.5	0.6
Average					4.7
Median					4.3

Pandora

Average

1785.5

383.4

4.7

Median

1648.6

383.4

4.3

## Transactions

- The transactions used in this approach were companies in the radio or music industry, or in the case of Hulu and Skype, companies with similar revenue models.
- All transactions had a transaction value of greater the \$100 million.
- None of the transactions listed were in the internet radio industry, but we feel that we chose the most relevant transactions possible given the nature of this new industry.
- The only multiple used was the LTM Sales multiple because Pandora does not have a positive EBIT or EBITDA.
- For these reasons, the precedent transaction approach was deemed to be less important than the other models and was weighted as such in the final valuation.

Overview

Market Methods

Intrinsic Value

Verdict

# Summary of Precedent Transactions



	Relevance of Transaction to Pandora's Valuation
The Skype logo, which consists of the word 'skype' in a blue, rounded, lowercase font with a small trademark symbol.	Microsoft's acquisition of Skype is relevant given Skype's freemium business model.
The XM Satellite Radio logo, featuring a yellow 'XM' with a radio wave symbol above it and the words 'SATELLITE RADIO' in yellow text to the right.	When Sirius acquired XM satellite radio, a radio segment similar to Pandora's was consolidated.
The Citadel Broadcasting Corporation logo, featuring a blue 'C' inside a circle and the words 'CITADEL BROADCASTING CORPORATION' in blue text to the right.	In Cumulus' acquisition of Citadel, the 2 <sup>nd</sup> largest terrestrial radio network acquired the 3 <sup>rd</sup> largest causing more competition against Pandora, which compares itself to terrestrial radio services.
The Hulu logo, which consists of the word 'hulu' in a green, lowercase, sans-serif font.	Hulu operates on a similar freemium model of Pandora. Also, Hulu has been faced with similar revenue model issues as Pandora despite having a large number of users.
The CNET Networks logo, featuring an orange 'C' with a white dot inside and the words 'CNET NETWORKS' in black text below it.	CNET Networks was acquired by CBS which is a media conglomerate also in the realm of distributing music content similar to Pandora.
The Audible.com logo, featuring the word 'audible.com' in a green, lowercase, sans-serif font with a small orange and yellow icon above the 'e'.	Audible Inc., provides many audio content including audio editions of books and a subscription radio service which competes with Pandora.
The Napster logo, featuring a blue cat head icon and the word 'napster' in a blue, lowercase, sans-serif font.	Napster offers interactive digital music services to discover, share, acquire and enjoy music through on-demand streaming which is very similar to Pandora's operations.

Overview

Market Methods

Intrinsic Value

Verdict

# Our DCF is driven off a 3-scenario operating model



- When modeling Pandora, **we identified major revenue and cost drivers** and estimated their future values as well as we could, taking into account historical trends and industry projections for the future.
- For particularly challenging assumptions, **we created 3 scenarios** to test how much the outcomes might vary, depending on important factors such as pending legislation or increased competition.
- **Upside Case:** Pandora's **user base grows 25% YoY** despite competition. **Ad load per hour increase rapidly**, though Pandora still has significantly less advertising than terrestrial radio. Sales refocuses on selling premium ads, **improving sell-through rates**, and Pandora's cost structure dramatically changes as per-song rates disappear and Pandora begins **paying 25% of revenue for content**.
- **Base Case:** As consumers turn to internet radio, Pandora's **user base grows 20% YoY**. **Ad load per hour and sell-through rates both rise steadily**. Negotiations over content are not constructive and **content acquisition rates rise** in line with historical increases.
- **Downside Case:** Despite competition, Pandora's **user base still grows 20% YoY** due to macro trends towards internet. Though **Pandora increases ad load**, sales is unable to sell the additional inventory effectively and **sell-through rises slowly**. **Content acquisition rates rise** in line with historical increases.

# Revenue Forecast Assumptions



## Revenue Drivers

- User base grows consistently
- Mobile ad units / hour rise from 2.0 to 5.0
- Mobile ad sell-through rate rises from 30% to 60%
- Other metrics held constant: hours listened per user, ad revenue per unit, etc

### 2015-2018 Ad Forecast Assumptions

Monthly Hours per User	19.4
Mobile Hours % of Total	80%
Web RPM	61.2
Mobile RPM Growth	20%
Premium Ad / Remnant Ad	3.5

### 2015-2018 Sub Forecast Assumptions

Sub User Growth Rate	10%
Monthly Hours per User	76.2
Revenue per User	36.9

## Scenarios

### Downside Case

- 20% YoY user growth
- Increase in mobile ads/hour matches base; within Pandora's control
- Sell through rate declines (unable to sell larger inventory)

### Base Case

- 20% YoY user growth
- Mobile ads/hour grows consistently
- Sell-through rate rises by increments of 5% every year

### Upside Case

- 25% YoY user growth
- Increase in amount of mobile ads / hour happens faster
- Mobile sell through rates remain consistent with base

# Revenue Forecast Model – Advertising Revenue



	2008A	2009A	2010A	2011A	FYE January 2012A	2013E	2014E	2015E	2016E	2017E	2018E
<b>Advertising</b>											
Ad-Supported Active Users				28.6	46.2	63.3	74.8	89.8	107.7	129.3	155.1
% Growth					61.5%	37.0%	18.2%	20.0%	20.0%	20.0%	20.0%
Monthly Hours per User				10.4	13.5	16.9	19.4	19.4	19.4	19.4	19.4
% Growth					30.1%	25.7%	14.3%	0.0%	0.0%	0.0%	0.0%
Total AS Listener Hours				3553	7466	12863	17377	20852	25023	30027	36033
% Growth					110.1%	72.3%	35.1%	20.0%	20.0%	20.0%	20.0%
Web Listener Hours				1502	2004	2703	3132	4170	5005	6005	7207
% of Total Listener Hours				42%	27%	21%	18%	20%	20%	20%	20%
Web RPM				59.8	62.1	58.6	61.2	61.2	61.2	61.2	61.2
% Growth					3.9%	-5.7%	4.5%	0.0%	0.0%	0.0%	0.0%
<b>Web Revenue</b>				<b>89.8</b>	<b>124.5</b>	<b>158.3</b>	<b>191.7</b>	<b>255.2</b>	<b>306.3</b>	<b>367.5</b>	<b>441.0</b>
Mobile Listener Hours				2051	5462.1	10160.5	14244.5	16681.7	20018.1	24021.7	28826.0
% of Total Listener Hours				58%	73%	79%	82%	80%	80%	80%	80%
Ad Units per Hour				2.0	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Total Ad Inventory				4102	10924	25401	42734	58386	80072	108098	144130
Sell Through Rate					30%	35%	40%	45%	50%	55%	60%
Premium Ad Inventory					3277	8890	17093	26274	40036	59454	86478
Premium Rev per Ad Unit					13.5	11.9	12.7	14.1	14.1	14.1	14.1
Remnant Ad Inventory					7647	16511	25640	32112	40036	48644	57652
Remnant Rev per Ad Unit					3.8	3.4	3.6	4.0	4.0	4.0	4.0
<b>Mobile Revenue</b>				<b>29.6</b>	<b>115.5</b>	<b>227</b>	<b>386.3</b>	<b>498.5</b>	<b>723.8</b>	<b>1031.5</b>	<b>1447.7</b>
% Growth					290.2%	96.5%	70.2%	20.0%	20.0%	20.0%	20.0%
Mobile RPM				14.4	21.1	22.3	27.1	29.9	36.2	42.9	50.2
% Growth					46.5%	5.7%	21.4%	20.0%	20.0%	20.0%	20.0%
<b>Total Ad Revenue</b>	<b>13.3</b>	<b>18.2</b>	<b>50.1</b>	<b>119.4</b>	<b>240.0</b>	<b>385.3</b>	<b>578.0</b>	<b>753.7</b>	<b>1030.1</b>	<b>1399.0</b>	<b>1888.7</b>
% Growth		37.1%	174.8%	138.1%	101.0%	60.5%	50.0%	30.4%	36.7%	35.8%	35.0%

Overview

Market Methods

Intrinsic Value

Verdict



# Revenue Forecast Model – Subscription & Total Revenue



	2008A	2009A	2010A	2011A	FYE January 2012A	2013E	2014E	2015E	2016E	2017E	2018E
<b>Subscription</b>											
Subscription Active Users				0.7	1	1.4	1.5	1.7	1.8	2.0	2.2
% Growth					42.9%	40.0%	7.1%	10.0%	10.0%	10.0%	10.0%
Monthly Hours per User				46.4	66.1	66.6	76.2	76.2	76.2	76.2	76.2
Subscription Listener Hours				390	793	1118	1372	1508.8	1659.6	1825.6	2008.2
Revenue per User				26.3	34.4	33.1	36.9	36.9	36.9	36.9	36.9
<b>Total Subscription Revenue</b>	<b>1.0</b>	<b>1.1</b>	<b>5.0</b>	<b>18.4</b>	<b>34.4</b>	<b>46.3</b>	<b>55.3</b>	<b>60.8</b>	<b>66.9</b>	<b>73.6</b>	<b>81.0</b>
% Growth		10.3%	364.3%	265.5%	86.5%	34.7%	19.4%	10.0%	10.0%	10.0%	10.0%
 Total YE Active Users			16	29.3	47.2	64.7	76.3	91.4	109.5	131.3	157.3
% Growth					61.1%	37.1%	17.9%	20.0%	20.0%	20.0%	20.0%
Total Listener Hours			1800	3943.3	8259.5	13981.6	18748.4	22360.9	26682.2	31852.7	38040.7
 <b>Total Revenue</b>	<b>14.3</b>	<b>19.3</b>	<b>55.2</b>	<b>137.8</b>	<b>274.4</b>	<b>431.6</b>	<b>633.3</b>	<b>814.5</b>	<b>1097.0</b>	<b>1472.6</b>	<b>1969.7</b>
% Growth		35.2%	185.5%	149.7%	99.1%	57.3%	46.7%	28.6%	34.7%	34.2%	33.8%

Overview

Market Methods

Intrinsic Value

Verdict

## Cost Drivers

- **Cost of Revenue** grows as 8% of revenue
- **Product Development** grows at a declining rate, from 20% to 15% YoY in FY 2018
- **Marketing & Sales** grows as a declining proportion of sales, from 24% to 18%
- **General & Administrative** grows at a declining rate, from 50% to 10% YoY
- **Content Acquisition** rises according to rate schedule

## Content Acquisition?

Based on our projected listener hours and assuming 15 songs per hour, we charged Pandora for each song played according to the published rates.

For ad-supported users, Pandora technically pays the higher of the per-song rate or 25% of revenue, but charging per song is always the higher value in our forecasts.

## Scenarios

### Downside Case

- Per-song rate rises to \$0.0016 and \$0.0017 in FY17 and FY18, respectively

### Base Case

- Per-song rate rises to \$0.0016 and \$0.0017 in FY17 and FY18, respectively

### Upside Case

- Content Acquisition is charged as 25% of revenue

# Cost Forecast Model



	FYE January										
	2008A	2009A	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E	2018E
Cost of Revenue	5.9	7.4	7.9	11.6	22.8	34.5	50.7	65.2	87.8	117.8	157.6
% Revenue	41%	38%	14%	8%	8%	8%	8%	8%	8%	8%	8%
% Growth		26%	7%	46%	97%	52%	47%	29%	35%	34%	34%
Product Development	5.9	6.1	6.0	6.7	13.4	16.1	19.2	22.6	26.5	30.7	35.3
% Revenue	41%	32%	11%	5%	5%	4%	3%	3%	2%	2%	2%
% Growth		3%	-1%	12%	99%	20%	19%	18%	17%	16%	15%
Marketing & Sales	8.2	13.3	17.4	36.3	65.0	102.3	150.0	193.0	241.3	294.5	354.5
% Revenue	57%	69%	32%	26%	24%	24%	24%	24%	22%	20%	18%
% Growth		61%	31%	108%	79%	57%	47%	29%	25%	22%	20%
General & Administrative	2.6	4.2	6.4	14.2	35.4	53.1	77.1	107.9	140.2	168.3	185.1
% Revenue	18%	22%	12%	10%	13%	12%	12%	13%	13%	11%	9%
% Growth		63%	52%	123%	150%	50%	45%	40%	30%	20%	10%
Content Acquisition	6.4	15.8	32.9	69.4	148.7	268.4	386.2	494.5	630.2	800.1	1012.2
% Revenue	45%	82%	60%	50%	54%	62%	61%	61%	57%	54%	51%
% Growth		146%	109%	111%	114%	81%	44%	28%	27%	27%	27%
Total Operating Costs	29.0	46.7	70.6	138.1	285.3	474.5	683.1	883.1	1126.0	1411.4	1744.8
<b>EBIT</b>	<b>-14.7</b>	<b>-27.4</b>	<b>-15.5</b>	<b>-0.3</b>	<b>-10.9</b>	<b>-42.9</b>	<b>-49.8</b>	<b>-68.6</b>	<b>-29.0</b>	<b>61.2</b>	<b>224.9</b>
<b>Content Acquisition Drivers</b>											
Ad Content Acquisition Cost											
Listener Hours (mm)				3553.3	7466.4	12863.3	17376.8	20852.2	25022.6	30027.1	36032.5
Avg. Songs / Hour				15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Per Song Rate				0.00102	0.00110	0.00120	0.00130	0.00140	0.00150	0.00160	0.00170
Cost by Rate				54.4	123.2	231.5	338.8	437.9	563.0	720.7	918.8
25% of Gross Ad Rev	3.3	4.6	12.5	29.9	60.0	96.3	144.5	188.4	257.5	349.8	472.2
Sub Content Acq Cost											
Listener Hours (mm)				390.0	793.1	1118.3	1371.6	1508.8	1659.6	1825.6	2008.2
Avg. Songs / Hour				15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Per Song Rate				0.00170	0.00200	0.00220	0.00230	0.00250	0.00270	0.00290	0.00310
Cost by Rate				9.9	23.8	36.9	47.3	56.6	67.2	79.4	93.4
Forecasted Acquisition Cost				64.3	147.0	268.4	386.2	494.5	630.2	800.1	1012.2

[Overview](#)
[Market Methods](#)
[Intrinsic Value](#)
[Verdict](#)

# Tax, Net Working Capital & Capital Expenditure Assumptions



## Taxes

- The tax rate is assumed to be 40%, which we apply to Pandora's operating income
- Pandora does not generate positive operating income until 2017, thereby accumulating Deferred Tax Assets and eliminating tax payments until 2018
- Tax Loss Carry-forwards peak at \$103.6 million in 2016, indicating significant losses until 2017

## Net Working Capital

- Current Operating Assets include Accounts Receivable and Prepaid Expenses
- Current Operating Liabilities include Accounts Payable, Accrued Expenses and Deferred Revenue
- NWC is driven by constant Current Assets / Listener Hours and Current Liabilities / Listener Hours ratios of 10.7 and 10.1, respectively
- NWC stays between 1-2% as a percentage of revenues throughout the forecast period
- The change in NWC is a use of cash in our model

## Capital Expenditures

- Capital Expenditures (CapEx) are grown at a percentage that decreases over the planning period
- CapEx growth is 50% in the first year of the planning period and declines by 10% per year subsequently until it reaches 10%
- In the last year of the planning period, 2018, CapEx is \$46 million
- CapEx growth slows over time, in line with the firm's maturation

## Terminal Value

- The terminal value is generated using the exit multiple method, as free cash flow does not appear to be in a steady state by the end of our planning period
- The exit multiple used is 12x, in line with the average and median multiples of Pandora's comparables
- The terminal value of \$1964.4 million represents more than 100% of Pandora's enterprise value given Pandora's negative free cash flow throughout most of the planning period

## WACC

- Pandora currently has no debt and will not have the cash flow generation to service debt during the planning period, so we assume no debt in the capital structure
- The cost of equity is calculated as follows:
  - Risk-free rate of 1.60%
  - Market risk premium of 5.50%
  - Beta of 1.17, which is Pandora's equity beta
  - Size premium of 1.73%, given Pandora's current market capitalization
- We decided to use Pandora's, rather than the industry's beta, given the dearth of pure-play comparables
- Pandora's WACC is computed to be 9.77%

## Sensitivity Analysis

		Exit Multiple				
		10.0x	11.0x	12.0x	13.0x	14.0x
WACC	7.77%	\$ 1,779.90	\$ 1,957.69	\$ 2,135.49	\$ 2,313.28	\$ 2,491.08
	8.77%	\$ 1,702.82	\$ 1,873.37	\$ 2,043.93	\$ 2,214.49	\$ 2,385.04
	9.77%	\$ 1,629.58	\$ 1,793.26	\$ 1,956.93	\$ 2,120.61	\$ 2,284.28
	10.77%	\$ 1,559.97	\$ 1,717.10	\$ 1,874.23	\$ 2,031.36	\$ 2,188.49
	11.77%	\$ 1,493.77	\$ 1,644.67	\$ 1,795.58	\$ 1,946.48	\$ 2,097.38

DCF Output:

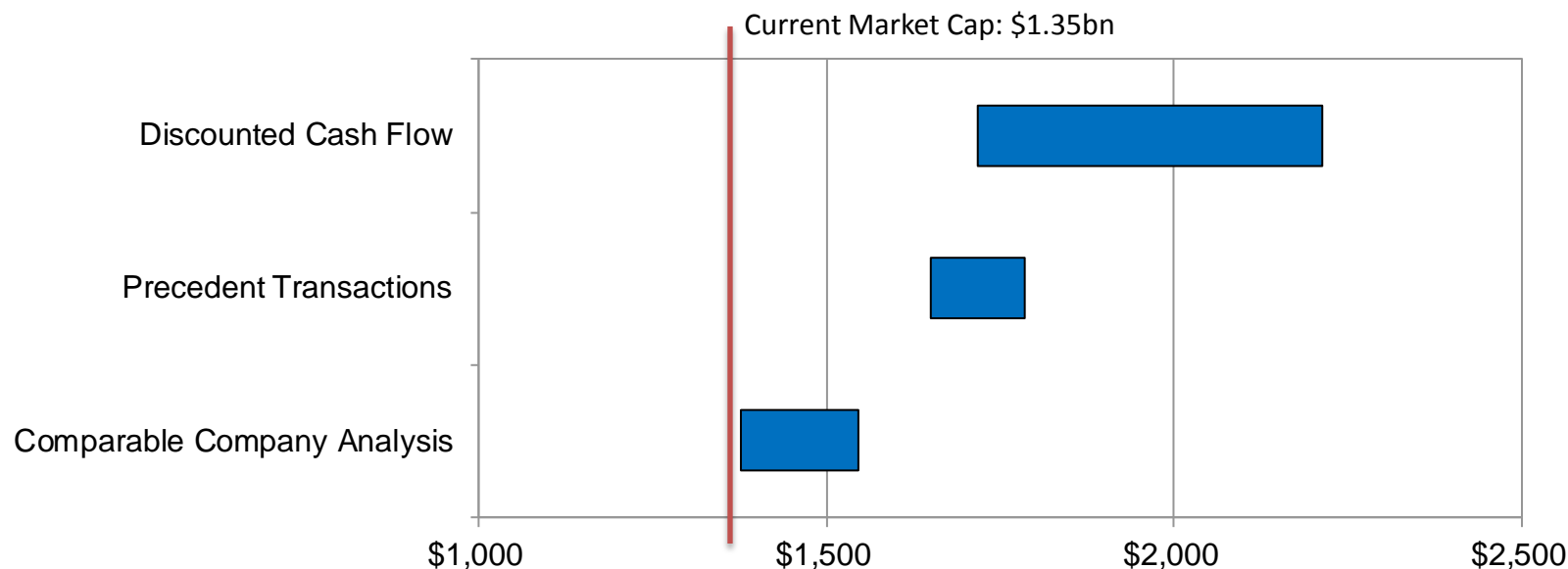
**Enterprise Value = \$1,957 million**

**Equity Value = \$2,038 million**

**Implied share price = \$12.07**

*Enterprise Value is highly sensitive to the exit multiple*

# Pandora's Range of Values



At the current price of \$7.95/sh and including any purchase premium, Pandora cannot be expected to provide strong returns.

	Low	High
Trading Comps	\$1,397	\$1,546
Precedents	\$1,649	\$1,786
DCF	\$1,717	\$2,214

We identified a range of values based upon:

- DCF: Base case with 11% WACC and 11x EBITDA exit, and base case with 9% WACC and 13x EBITDA exit
- Precedents: Median and average revenue multiples
- Trading Comps: LTM and NTM Revenue multiples

However, we have most conviction in our midpoint DCF value of \$12.07 per share.

Overview

Market Methods

Intrinsic Value

Verdict

# Valuation Comparison: DCF vs Market Approach



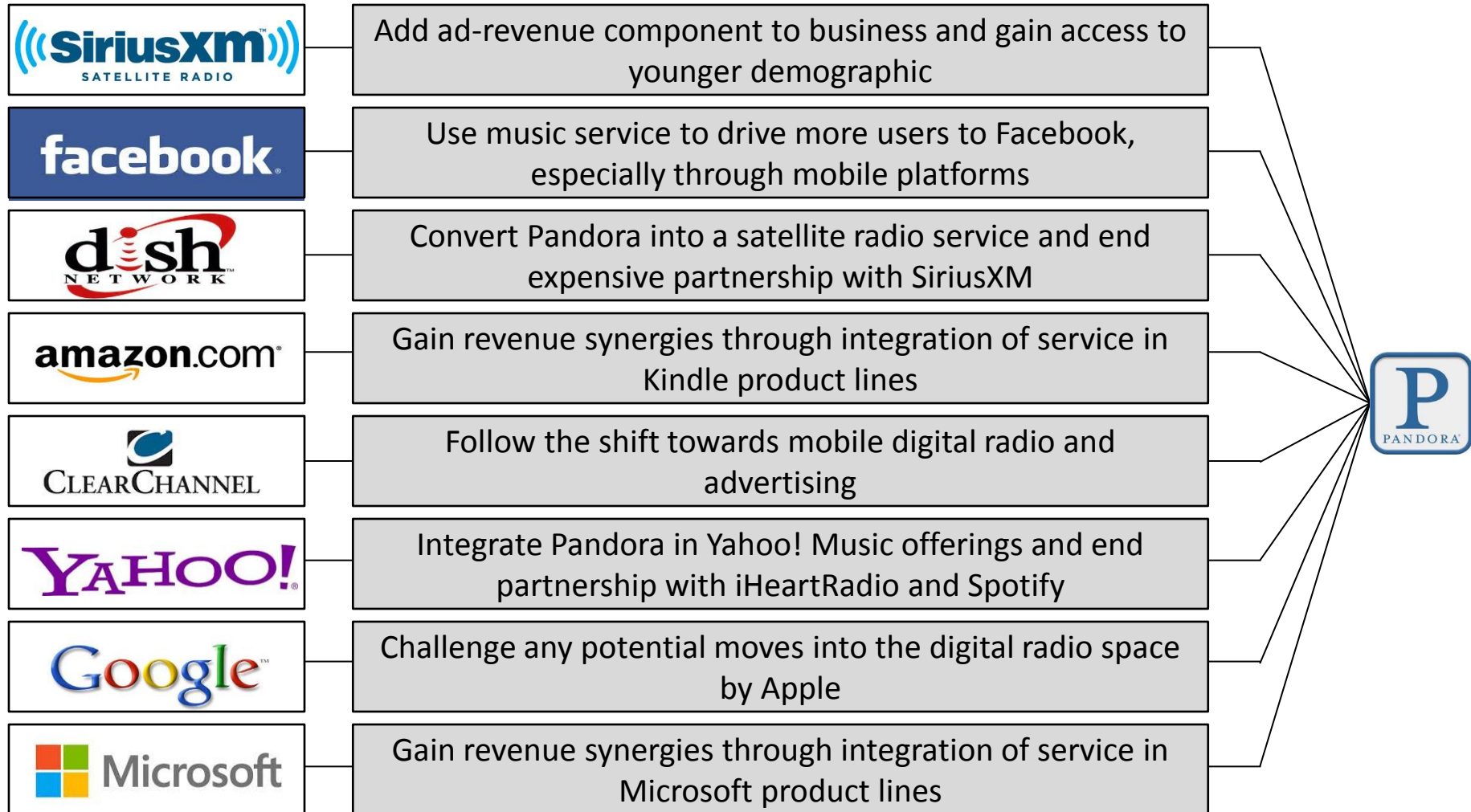
	Low	High
Trading Comps	\$1,397	\$1,546
Precedents	\$1,649	\$1,786
DCF	\$1,717	\$2,214

- The DCF approach yields the highest valuation of Pandora while the Company Comparables approach yields the lowest valuation of Pandora.
- This discrepancy is justified for the following reasons:
  - DCF is based on optimistic growth trends, especially concerning the future growth of advertisement revenue and Pandora's user base (even in our base-case)
  - There are no "pure" public comparables for Pandora, and the Comparable Companies approach factors in stronger investor skepticism in the future of the digital media and traditional broadcast radio industries
  - The Precedent Transactions approach factors in premiums paid for companies similar to Pandora (makes sense for this approach to yield value in between the other two approaches)
- We believe that the overall assessment of Pandora's value should be heavily weighed towards the value calculated through the DCF analysis. We believe the DCF method is most relevant as it analyzes the intrinsic value of Pandora's operations and is more relevant than the Company Comparables and Precedent Transactions analyses as these approaches compare Pandora to a variety of indirectly related companies.

# Potential Strategic Buyers



*Strategic buyers might be interested in acquiring Pandora for certain synergies that we as a financial buyer cannot achieve*



Overview

Market Methods

Intrinsic Value

Verdict



*Due to the following reasons, we have decided to pass on the opportunity to invest in Pandora.*

1. Through our rather optimistic DCF analysis, we have calculated Pandora's intrinsic value to be \$12.07 per share. Considering that Pandora's current share price is \$7.95 and that we would likely have to pay a premium to acquire a large stake in the company, our upside would be capped at around 50%, which we consider low.
2. The likelihood of increased competition in the near future is very sizeable, as Spotify continues to grow and alter its business model and large players such as Google and Apple consider entering the space.
3. The digital radio space continues to be affected by adverse legislation, especially in regards to content acquisition costs. Future legislation could further decrease Pandora's profitability.
4. We have no synergies to gain from an acquisition of Pandora and could face a potential bidding war from strategic buyers if we decide to make an offer.



# Benchmark Analysis



Company	Revenue Growth				Historical Gross Profit				Historical NWC				Historical Capex				Historical D&A			
	FY - 3	FY - 2	FY - 1	LTM	FY - 3	FY - 2	FY - 1	LTM	FY - 3	FY - 2	FY - 1	LTM	FY - 3	FY - 2	FY - 1	LTM	FY - 3	FY - 2	FY - 1	LTM
(\$ in millions)																				
<b>Internet Retail</b>																				
Netflix Inc.	13%	22%	29%	2%	454.4	591.0	805.3	1034.5	(153.2)	(135.3)	(99.7)	(171.6)	(43.8)	(45.9)	(33.8)	(32.9)	32.5	38.0	38.1	45.3
Amazon.com Inc.	29%	28%	40%	5%	4270.0	5531.0	7643.0	13591.0	(2257.0)	(3933.0)	(5387.0)	(4735.0)	(333.0)	(373.0)	(979.0)	(2309.0)	115.0	158.0	279.0	1409.0
<b>High</b>	29%	28%	40%	5%	4270.0	5531.0	7643.0	13591.0	(153.2)	(135.3)	(99.7)	(171.6)	(43.8)	(45.9)	(33.8)	(32.9)	115.0	158.0	279.0	1409.0
<b>Average</b>	21%	25%	35%	4%	2362.2	3061.0	4224.1	7312.7	(1205.1)	(2034.1)	(2743.3)	(2453.3)	(188.4)	(209.5)	(506.4)	(1171.0)	73.7	98.0	158.5	727.2
<b>Median</b>	21%	25%	35%	4%	2362.2	3061.0	4224.1	7312.7	(1205.1)	(2034.1)	(2743.3)	(2453.3)	(188.4)	(209.5)	(506.4)	(1171.0)	73.7	98.0	158.5	727.2
<b>Low</b>	13%	22%	29%	2%	454.4	591.0	805.3	1034.5	(2257.0)	(3933.0)	(5387.0)	(4735.0)	(333.0)	(373.0)	(979.0)	(2309.0)	32.5	38.0	38.1	45.3
<b>Broadcast Radio</b>																				
SIRIUS XM Radio Inc.	80%	49%	14%	3%	800.5	1408.6	1717.8	2062.9	(1598.8)	(1586.5)	(1748.8)	(987.9)	(130.6)	(248.5)	(311.9)	(95.9)	168.0	232.9	207.4	211.5
Entercom Communications Corp.	-6%	-15%	5%	0%	162.6	118.4	132.6	130.4	48.5	55.0	55.5	49.8	(8.6)	(2.5)	(2.7)	(3.5)	16.3	15.1	11.4	10.0
Saga Communications Inc.	-3%	-14%	6%	0%	34.2	26.2	35.1	37.0	13.4	11.9	11.0	11.7	(7.1)	(4.0)	(4.3)	(5.3)	8.8	8.6	7.7	7.3
Fisher Communications Inc.	7%	-24%	32%	0%	104.0	67.6	103.8	95.8	13.4	32.5	19.1	(76.2)	(10.3)	(11.6)	(10.0)	(10.6)	12.5	13.4	14.2	6.7
Nexstar Broadcasting Group Inc.	7%	-12%	24%	5%	206.6	174.7	235.0	260.7	15.0	31.2	31.0	24.4	(30.8)	(19.0)	(13.8)	(13.5)	21.0	21.7	21.1	23.2
LIN TV Corp.	1%	-18%	25%	8%	281.3	223.3	289.0	323.2	1.8	24.3	28.5	42.0	(28.5)	(10.1)	(17.4)	(27.8)	29.7	28.6	27.0	27.3
Cumulus Media Inc.	-5%	-18%	3%	16%	108.3	90.4	103.5	428.3	26.8	29.3	22.9	123.1	(6.1)	(3.1)	(2.5)	(8.5)	12.5	10.8	8.9	105.7
CC Media Holdings Inc.	-3%	-17%	6%	0%	3784.2	3022.5	3484.0	3730.4	536.5	609.4	420.4	674.7	(430.5)	(232.1)	(257.6)	(411.1)	488.2	423.9	400.6	425.2
<b>High</b>	80%	49%	32%	16%	3784.2	3022.5	3484.0	3730.4	536.5	609.4	420.4	674.7	(6.1)	(2.5)	(2.5)	(3.5)	488.2	423.9	400.6	425.2
<b>Average</b>	10%	-9%	14%	4%	685.2	641.5	762.6	883.6	(117.9)	(99.1)	(145.0)	(17.3)	(81.5)	(66.4)	(77.5)	(72.0)	94.6	94.4	87.3	102.1
<b>Median</b>	-1%	-16%	10%	2%	184.6	146.6	183.8	292.0	14.2	30.3	25.7	33.2	(19.4)	(10.8)	(11.9)	(12.1)	18.7	18.4	17.6	25.2
<b>Low</b>	-6%	-24%	3%	0%	34.2	26.2	35.1	37.0	(1598.8)	(1586.5)	(1748.8)	(987.9)	(430.5)	(248.5)	(311.9)	(411.1)	8.8	8.6	7.7	6.7
<b>Digital Media Distribution</b>																				
Yahoo! Inc.	3%	-10%	-2%	0%	4185.1	3588.6	3697.1	3421.7	(411.5)	(414.0)	(164.4)	(2233.7)	(674.8)	(433.8)	(714.1)	(486.1)	427.8	426.5	447.2	412.7
Blinkx plc	95%	142%	96%	14%	9.8	21.9	43.2	76.1	0.5	3.6	3.9	1.9	(0.7)	(0.9)	(1.6)	(5.6)	0.2	0.4	0.4	1.7
Demand Media Inc.	25%	17%	27%	5%	72.1	83.9	121.6	189.5	(29.2)	(30.9)	(36.6)	(36.3)	(20.1)	(15.3)	(21.4)	(16.6)	9.7	14.7	17.6	18.7
CBS Corp.	-1%	-7%	8%	0%	5299.7	4315.0	5075.0	6172.0	16.8	617.3	916.0	1198.0	(474.1)	(262.0)	(284.0)	(265.0)	413.0	449.0	433.0	418.0
<b>High</b>	95%	142%	96%	14%	5299.7	4315.0	5075.0	6172.0	16.8	617.3	916.0	1198.0	(0.7)	(0.9)	(1.6)	(5.6)	427.8	449.0	447.2	418.0
<b>Average</b>	31%	35%	32%	5%	2391.7	2002.4	2234.2	2464.8	(105.9)	44.0	179.7	(267.5)	(292.4)	(178.0)	(255.3)	(193.3)	212.7	222.7	224.5	212.8
<b>Median</b>	14%	5%	18%	3%	2128.6	1836.2	1909.4	1805.6	(14.4)	(13.7)	(16.3)	(17.2)	(247.1)	(138.7)	(152.7)	(140.8)	211.4	220.6	225.3	215.7
<b>Low</b>	-1%	-10%	-2%	0%	9.8	21.9	43.2	76.1	(411.5)	(414.0)	(164.4)	(2233.7)	(674.8)	(433.8)	(714.1)	(486.1)	0.2	0.4	0.4	1.7
<b>Internet Services (Explorative &amp; Ad-Based)</b>																				
Yelp Inc.	NA	113%	85%	13%	11.5	24.7	44.6	112.6	0.0	0.0	1.7	0.0	(1.3)	(0.6)	(3.6)	(5.5)	0.5	0.9	1.7	5.2
Travelzoo Inc.	2%	16%	20%	-2%	78.0	88.3	105.5	133.9	3.3	7.3	(1.8)	(9.1)	(3.9)	(2.0)	(1.3)	(2.6)	0.6	1.2	1.6	1.7
LinkedIn Corp.	142%	52%	102%	16%	60.2	94.3	198.3	723.0	(9.0)	(18.1)	(26.2)	(130.3)	(19.6)	(13.3)	(50.0)	(114.0)	4.8	9.8	15.7	55.9
Facebook Inc.	NA	NA	154%	7%	0.0	554.0	1481.0	3421.0	0.0	0.0	178.0	1125.0	0.0	(33.0)	(293.0)	(1222.0)	0.0	76.0	130.0	479.0
TripAdvisor Inc.	NA	18%	38%	5%	295.8	347.5	477.3	720.2	0.0	(109.9)	(77.5)	38.2	(17.9)	(13.9)	(18.8)	(25.9)	2.0	3.3	4.8	6.7
Google Inc.	31%	9%	24%	10%	13174.0	14807.0	18904.0	28549.0	2030.3	1935.0	4028.0	2667.0	(2359.0)	(810.0)	(4018.0)	(3204.0)	1212.0	1240.0	1067.0	1743.0
<b>High</b>	142%	113%	154%	16%	13174.0	14807.0	18904.0	28549.0	2030.3	1935.0	4028.0	2667.0	0.0	(0.6)	(1.3)	(2.6)	1212.0	1240.0	1067.0	1743.0
<b>Average</b>	59%	42%	71%	8%	2269.9	2652.6	3535.1	5609.9	337.4	302.4	683.7	615.1	(400.3)	(145.5)	(730.8)	(762.3)	203.3	221.9	203.5	381.9
<b>Median</b>	31%	18%	61%	9%	69.1	220.9	337.8	721.6	0.0	0.0	(0.0)	19.1	(10.9)	(13.6)	(34.4)	(69.9)	1.3	6.5	10.2	31.3
<b>Low</b>	2%	9%	20%	-2%	0.0	24.7	44.6	112.6	(9.0)	(109.9)	(77.5)	(130.3)	(2359.0)	(810.0)	(4018.0)	(3204.0)	0.0	0.9	1.6	1.7
Pandora Media Inc.	35%	185%	150%	13%	(\$3.8)	\$14.4	\$56.8	\$123.7	(\$9.7)	\$3.0	\$0.4	\$9.3	(\$0.6)	(\$1.9)	(\$8.2)	(\$8.6)	\$1.2	\$1.1	\$1.6	\$6.6

Overview

Market Methods

Intrinsic Value

Verdict

## Gordon Growth

- Because FCF was not in a steady state, we opted to use the exit multiple method in our DCF valuation
- However, we also computed terminal value using the perpetuity growth method
- We used a 3.5% growth rate to remain conservative
- Again, the terminal value of \$2168.5 million represents more than 100% of Pandora's enterprise value given Pandora's negative free cash flow throughout most of the planning period
- Our final enterprise value of \$2161.4 million is close to the enterprise value calculated using the exit multiple method

### Sensitivity Analysis

Perpetuity Growth Rate

		2.5%	3.0%	3.5%	4.0%	4.5%
WACC	7.77%	\$2,775.09	\$3,080.72	\$ 3,457.92	\$3,935.18	\$4,558.40
	8.77%	\$2,233.21	\$2,438.82	\$ 2,683.44	\$2,979.35	\$3,344.56
	9.77%	\$1,843.43	\$1,989.80	\$ 2,159.51	\$2,358.64	\$2,595.55
	10.77%	\$1,550.44	\$1,659.05	\$ 1,782.60	\$1,924.39	\$2,088.80
	11.77%	\$1,322.82	\$1,406.01	\$ 1,499.25	\$1,604.50	\$1,724.22

DCF Output:

**Enterprise Value = \$2,159 million**

**Equity Value = \$2,242 million**

**Implied share price = \$13.28**

*Enterprise Value is highly sensitive to the perpetuity growth rate*