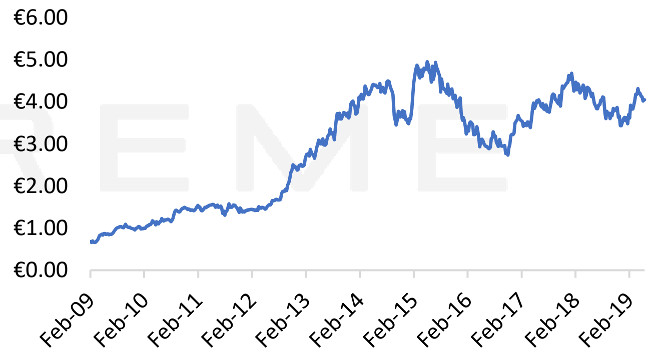
6/3/2019 Bireme Capital	**Bollore SA (BOL FP)**	Evan Tindell Chief Investment Officer

Holdco Net Debt		€5,044
Vivendi shares value		€8,065
Price (6/3/19)		€4.05
Market Cap		€5,422
	Core EBIT	Excl Battery losses
2015	343	469
2016	262	430
2017	231	396
2018	247	399



ELEVATOR PITCH

Bollore is an undervalued European conglomerate that is suffering from a dual discount:

1. Underestimation of the value of the music label business operated by Vivendi (25% owned by Bollore).
2. Overestimation of the economic shares outstanding.

We think the stock will likely generate an annualized return in excess of 18% over a five-year period.

WHY IT'S UNDERVALUED

Prior to 2014, Bollore's logistics segment generated the vast majority of revenue and profits for the company. But since then, Bollore has accumulated 343m shares of Vivendi SA, a publicly traded French media conglomerate. This stake now generates about 50% of Bollore's consolidated profits.

Vivendi's profits, in turn, increasingly rely on Universal Music Group (UMG), its music label subsidiary. UMG is the world's most successful record company and has a roughly 30% market share of recorded music revenues.

At Bireme Capital, we seek to find securities that are mispriced due to human cognitive biases. We think investors looking at Vivendi's music business may suffer from several biases:

- **Anchoring bias** – The music industry has struggled mightily in the 21st century. Investors are anchored to that reality, despite indications the industry is entering a new, more profitable phase.
- **Representativeness bias** – The owners of most TV content (cable and broadcast networks) have failed to profit from TV's streaming era, and investors appear to assume that this is representative of the fate of music content owners. We think a different outcome is likely due to wide disparities in industry structure and consumer expectations.

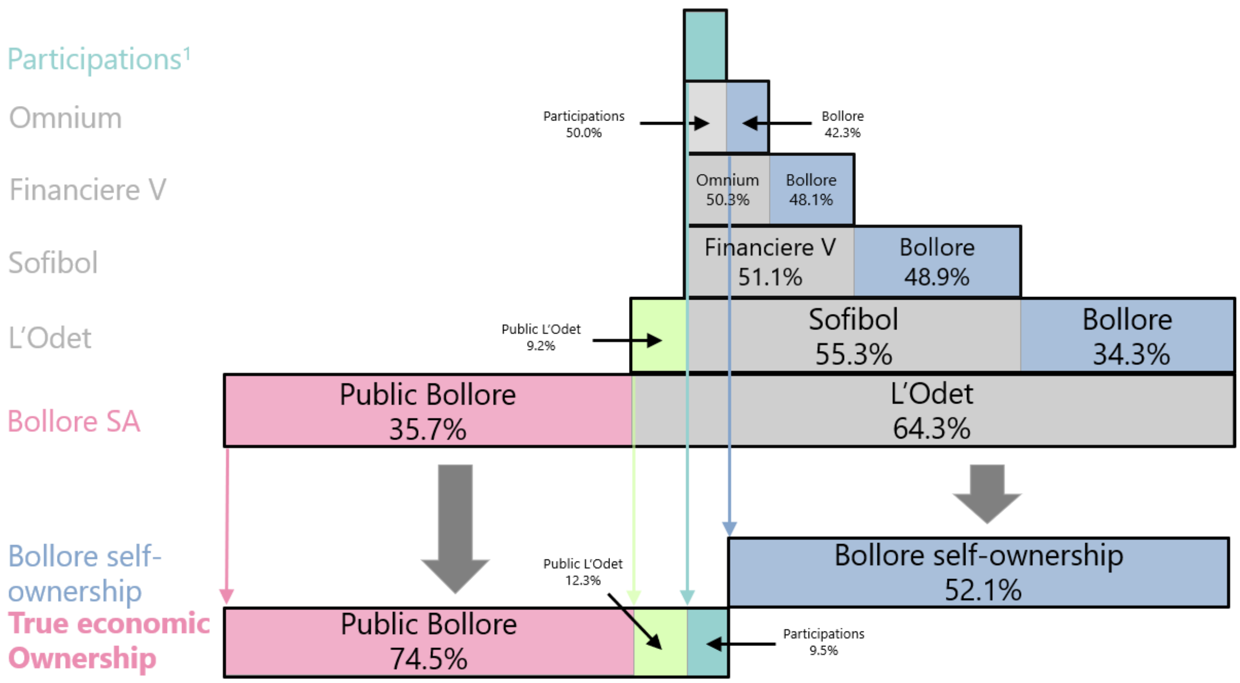
We think these biases have led investors to materially undervalue Vivendi at current prices. The best way to capitalize on this is through an investment in Bollore, which provides further discounted exposure to Vivendi.

The driver of the discount at the Bollore level is **availability bias**, a bias that causes shareholders to focus on the most available information – in this case, the reported share count. The share count as disclosed in Bollore's financial statements (2.9b) is actually *more than twice* the economic shares outstanding (1.4b by our calculation).

The true economic share count is smaller than the reported figure because most Bollore shares are self-owned by subsidiaries in a complicated web of crossholdings. The larger, misleading share count is corroborated by resources like Bloomberg and Yahoo Finance, none of which make the proper adjustments.

In the figure we've created below, each row represents an upstream holding company affiliated with Bollore. As many of the upstream companies which own pieces of Bollore are partially owned by Bollore itself, self-ownership accumulates as we travel down the graph towards the operating company.

The final row shows the true economic ownership of Bollore after accumulated self-ownership has been subtracted out. 52.1% of Bollore's outstanding shares are indirectly self-owned. They should be treated as treasury shares and can be subtracted from the total share count. Thus, public shareholders actually own 74.5% of Bollore, rather than the reported 35.7%.



[1]Bollore Participations (Vincent Bollore and family) and other minor holding companies.

Note: Rows may not add up to 100% as some minor upstream holding companies are elided for clarity.

<u>THE BUSINESS</u>

<u>Logistics</u>

In the late 1980s, Bollore consolidated several different logistics businesses. The final entity combined SCAC, a French shipping and handling business, Société Navale Caennaise, an African cargo handling company, and Delmas-Vieljeux, an Africa-focused shipping company. These businesses were renamed "SDV" and could trace their roots back to 1867, when the Delmas brothers founded a company to ship coal from La Rochelle, France. In 1997, Bollore added another Africa-focused logistics business, Saga.

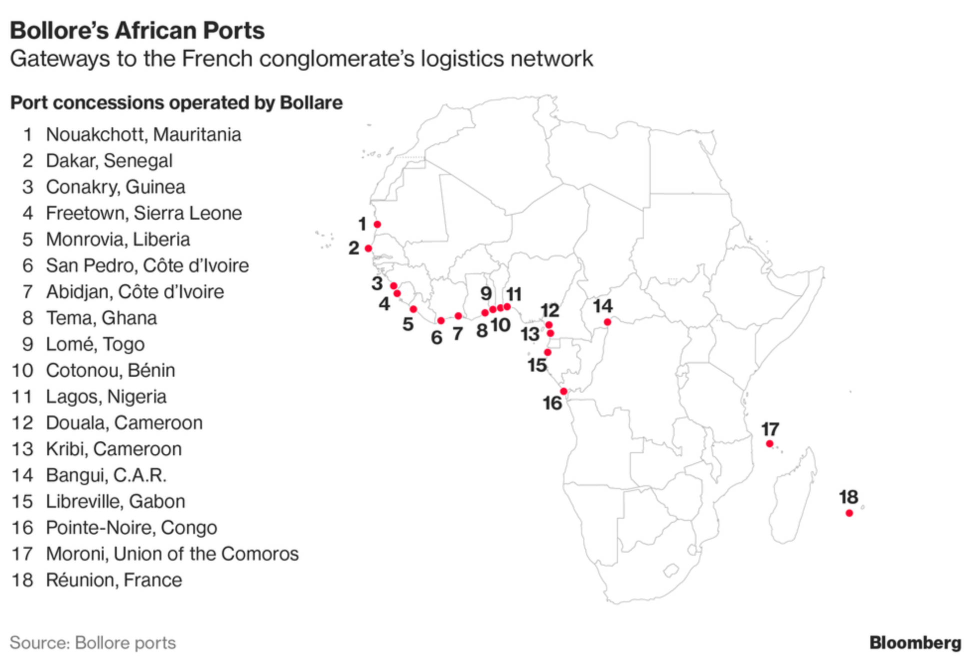
The segment has a long history of growth, expanding methodically from $4 billion in sales in 2007 to $6 billion last year. It has had positive operating income each year, despite the commodities busts of 2008 and 2015 which negatively impacted the resource-dependent economies of many African countries.

LOGISTICS SEGMENT	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Freight Forwarding	€ 2,665	€ 2,852	€ 2,251	€ 2,666	€ 2,788	€ 3,006	€ 2,943	€ 3,073	€ 3,363	€ 3,085	€ 3,394	€ 3,531
African Ports and Logistics	€ 1,427	€ 1,670	€ 1,781	€ 1,977	€ 2,084	€ 2,467	€ 2,526	€ 2,556	€ 2,688	€ 2,373	€ 2,368	€ 2,476
Total Logistics	€ 4,092	€ 4,522	€ 4,032	€ 4,643	€ 4,872	€ 5,416	€ 5,469	€ 5,629	€ 6,051	€ 5,458	€ 5,762	€ 6,007
YoY		*10.5%*	*-10.8%*	*15.2%*	*4.9%*	*11.2%*	*1.0%*	*2.9%*	*7.5%*	*-9.8%*	*5.6%*	*4.3%*
EBITDA	€ 326	€ 381	€ 417	€ 471	€ 522	€ 636	€ 684	€ 730	€ 767	€ 689	€ 705	€ 719
EBITDA margin	8.0%	8.4%	10.3%	10.1%	10.7%	11.7%	12.5%	13.0%	12.7%	12.6%	12.2%	12.0%
Operating Income	€ 251	€ 297	€ 317	€ 363	€ 414	€ 496	€ 541	€ 567	€ 569	€ 490	€ 491	€ 511

There are two separate segments in this business. The "Bollore Logistics" segment (which I am calling "Freight Forwarding") provides freight forwarding and logistics services across the globe. They help manufacturers and retailers get their goods to market; they rent space on ships or planes, manage customs at ports of entry, and arrange ground transport for final delivery. They are a one-stop shop for getting your goods nearly anywhere in the world, although they specialize in trade between Europe and developing countries in Asia and Africa. This business is relatively capital light.

The "Africa Ports and Logistics" business owns hard assets, including rail lines in Cameroon, Ivory Coast, and Burkina Faso. It also owns 6,275 pieces of handling equipment, 7.3 million square meters of warehouses and office space, and has >100 shipping offices in 46 countries. These assets operate out of and in collaboration with Bollore's 16 port concessions. These concessions are the linchpin of the business and allow Bollore to charge a handling fee for each container that arrives at the port. By our estimates these terminal handling charges – at €100-150 per 20-foot container – generate $400-600m in revenues for Bollore Africa.

Bollore dominates the West African ports business, and the concessions that they operate are shown in the picture below.



Bollore's logistics competitors include DP World, Kuehne Nagel, Panalpina, and Expeditors International. These companies trade from 11-15x EBIT. We think these multiples accurately reflect the quality of this industry, which has a consistent track record of profitability and high barriers to entry, such as:

Freight Forwarding:

- Economies of scale from aggregating purchasing power among shippers

- Familiarity with varied import regulations
- Thousands of boots on the ground

Africa Ports and Logistics:
- Hard-earned trust of local governments
- Inland network of hard assets (rail, warehouses, handling equipment)
- Concession contracts with 10-20 years remaining

We think this business will grow profits slowly over time with lower than average risk. It deserves at least a market (~15x) PE multiple.

Vivendi and the music industry

Bollore's most important investment is an €8b stake in Vivendi. With its origins in an 1853 decree by Emperor Napoleon III, Vivendi was originally focused on providing water to major French cities. Starting in the 1970s, it began to diversify into other industries such as construction, industrial vehicles, and broadcast TV.

Today's incarnation manages a relatively small number of media-focused subsidiaries in TV, advertising, and music. However, the 2018 results make clear that Vivendi's current fortunes are driven by UMG.

EBITA *in euro millions*	**2017**	**2018**	**Δ (%)**	**Δ organic (%)***
Universal Music Group	761	902	+18.4%	+22.1%
Canal+ Group	300	400	+33.6%	+32.8%
Canal+ Group - EBITA before restructuring charges	*349*	*428*	*+22.6%*	*+21.8%*
Havas	111	215	na	na
Other businesses**	(203)	(229)	-12.8%	-15.0%
Total Vivendi	**969**	**1,288**	**+33.0%**	**+24.7%**

Our bullish view on UMG starts with our opinion of the broader recorded music industry: we think it is experiencing a significant inflection in growth. This is driven almost entirely by streaming, with Apple Music and Spotify the leading consumer-facing brands.

We are not alone in forecasting an increase in streaming revenues: Spotify's $20 billion market cap clearly implies expansion beyond the company's current ~$5b in revenues and $200m in free cash flow. Of course, growth for Spotify would merely be a continuation of the recent past; the company grew 33% last quarter and has guided for sales growth of 25%[1] for 2019.

But why is Spotify experiencing such growth? The answer is that it simply provides a better product at a better price than nearly all other music options that came before. To show this, and to determine how large streaming music could get, we need to go back in history.

In 2000, the average person spent about $50 (inflation adjusted) per year on recorded music[2]. This was the heyday of the CD, which was not a great product for consumers. Your music was portable, but it was burdensome to carry around. CDs would skip if jostled, causing the music to pause. And it cost hundreds of dollars per year to consume

[1] At the midpoint of the 21-29% range.

[2] Kerven & Diebel (2019, March 11). *Music Matters: Season 1: The Fundamentals of Music.* [JP Morgan European Equity Research]. Retrieved from Bloomberg.

the output of your favorite artists. But CD purchases composed virtually all the revenues of the recorded music industry at the turn of the century.

Then came Napster and digital downloads. After purchasing an iPod for a few hundred dollars, consumers could access a thousand songs at once with zero ongoing fees. This simultaneously saved consumers money and improved the experience. But there were a few problems from the consumer's standpoint. First, it was illegal, although this did not seem to bother many consumers. Second, there was the annoying necessity of managing your downloads. Having 1-2,000 songs on your device was convenient, but the tracks and albums needed to be downloaded manually, and voracious music fans eventually ran into device storage limits. Finally, Napster files occasionally contained malware that would harm the downloader's computer.

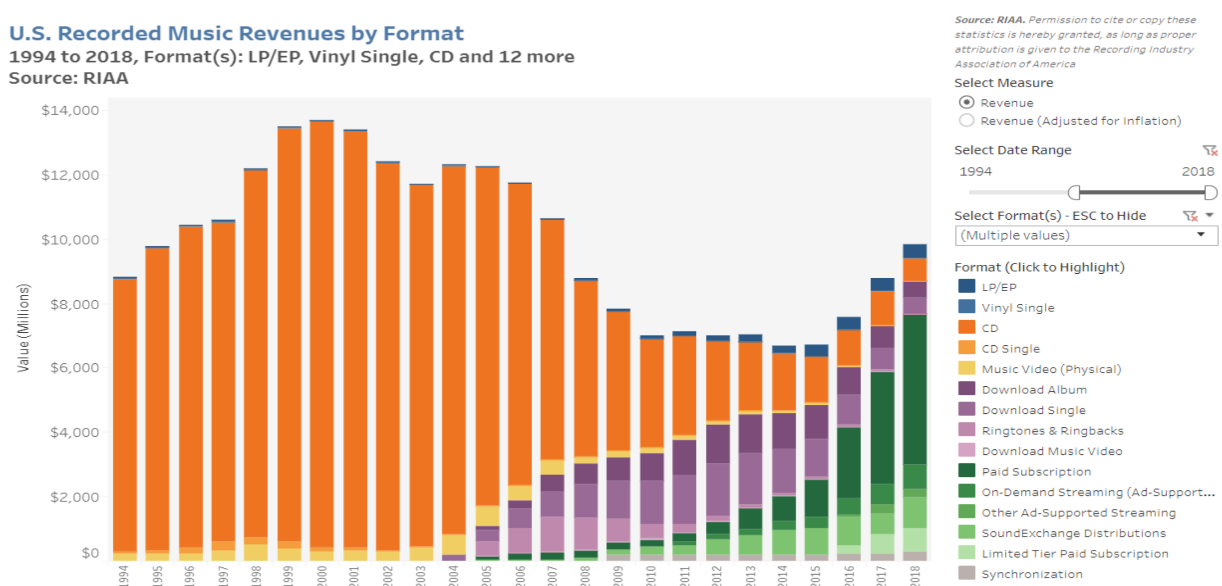
The iTunes store solved some of these problems. It was legal, allowed consumers to buy singles for around 99₵, and its files never contained viruses. However, songs were not free, and thus iTunes purchases never fully arrested illegal music downloads, and recorded music sales continued declining. The result was that US per person spend dropped precipitously during the piracy age, from $50 in 2000 all the way down to $10 in 2011.

This was the same year that Spotify was first introduced to the US consumer.

Founded and launched in Sweden, by 2011 Spotify AB had already spent three years proving that a new model was possible. The company's initial success – in the world's most piracy-prone country of Sweden – showed that consumers *were* willing to pay for music if offered a vastly superior product: streaming access to all the world's music for just $9.99 per month. The service quickly gained popularity in Sweden and piracy rates decreased. The industry was forever changed.

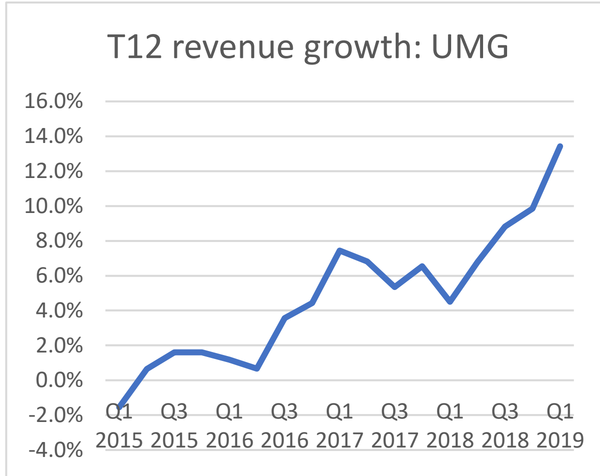
Today there are several streaming apps alongside Spotify that offer more than 30 million tracks in your pocket for around the same price. You don't need to carry any extra electronics. You don't need to download songs ahead of time. You don't need to worry about storage space. And you certainly don't need to worry about getting sued – or getting a computer virus.

Consumers have started to respond and are listening to more music now than ever. Data from Nielsen indicate that US consumers listened to 37% more music in 2017 vs 2015.



And as the graph above shows, this has started to result in rising industry revenues. Albums sales are still in decline but now constitute a minority of industry sales. Streaming now accounts for about 75% of industry revenues in the US, and grew 30% last year.

This growth has begun to transform the businesses of labels like Universal Music (see graph at right). UMG has seen organic revenue growth accelerate consistently over the past four years, averaging 13.4% over the trailing 4 quarters.



However, spend per person is still less than half what it was in the 1990s, despite today's vastly superior product. This leaves ample room for growth.

We think the industry can double in size in the US alone and do even better internationally. Investors who don't see this bright future may have irrationally anchored their expectations to the industry doldrums of the early 21st century.

The music industry is different than TV

Saying that the music industry will grow revenues via streaming is not the same as saying that value will accrue to music labels and content owners like UMG/Vivendi. In fact, we've already seen content owners fail to capture this value in the TV business. In the video world, value has accrued to Netflix, the sole scale distributor. Investors who believe UMG will suffer the same fate as TV content owners are likely suffering from representativeness bias. We think UMG is likely to have much more success for the following reasons:

1. Higher concentration: three major labels have >80% share of the music catalog
2. Greater importance of the back catalog
3. Lack of exclusive rights for distributors
4. Starting size: TV had $60b in subscription-related revenue to lose vs none for music

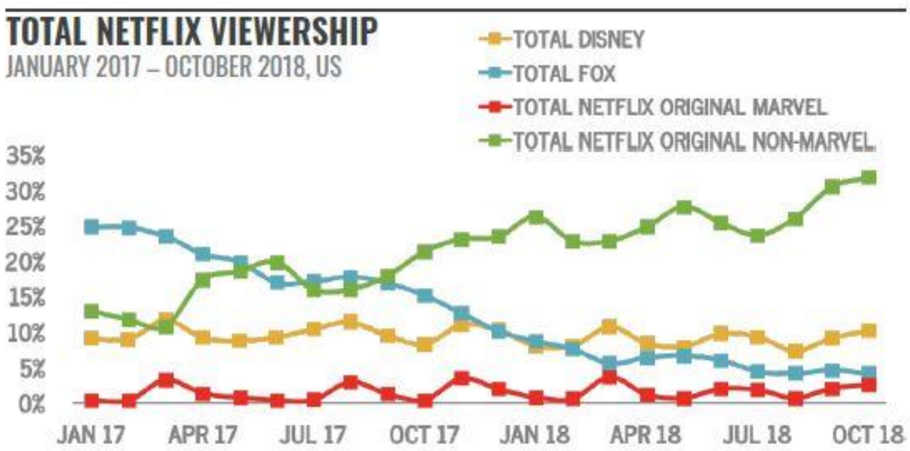
#1 & #2: Concentration and catalog content. Popular recorded music, unlike most popular TV content, retains value for a long time. People still stream Bruce Springsteen and other popular musicians from the 1980s. MASH? Not so much. Spotify and Apple Music have also conditioned users that a music streaming service must have literally every song. This greatly advantages content owners relative to distributors.

Thus, the music labels, which own the rights to most of the back catalog, have an effective veto power over Spotify's business. The labels used this power to negotiate a >50% cut of Spotify's revenues, leaving Spotify with little in profits.

Netflix, on the other hand, has operated in a much more fragmented landscape. Cable channels, network TV, and movie studios all hold some of the content, and none of it is absolutely essential to Netflix's streaming service.

#3: Exclusive rights. Historically, TV has been licensed on an exclusive basis. Netflix's first deals, struck in 2007 and 2008, gave them exclusive streaming rights to thousands of movies for years. This allowed Netflix to generate a massive number of subscribers, which they parlayed into the world's largest budget for content creation.

The original content that Netflix has amassed over the last 5 years or so generates a material amount of viewing on the platform. In fact, today, Netflix's original content makes up about 30% of subscriber viewing on their platform. In contrast, content licensed by Disney and Fox make up <15% of hours watched. This original content gives Netflix plenty of future bargaining power with the content owners.



Spotify does not have exclusive content. In fact, essentially all of their content is also available on Apple Music. The existence of other buyers, including Amazon, YouTube, and Tencent, adds to the bargaining power of the labels.

These are not token competitors: Apple Music has allegedly signed up more paid subscribers than Spotify in the US, despite launching five years later. If Spotify tries to play hardball with the labels, they can credibly threaten to remove their content, which likely accounts for >80% of listening.

#4: Industry history. The impact of Netflix on the legacy TV industry has been largely negative. In our view, this is partially due to the industry starting point: TV businesses had significantly more revenue to lose.

When Netflix started streaming in earnest around 2012, the TV industry was very healthy. At that time, it generated more than $60b billion in revenue for content owners – $50 per US household per month – split about evenly between advertising and subscriber fees. Sticker prices paid to the cable providers, such as Charter and Comcast, were even higher.

Netflix came in at a much lower price point at about $8 per month. For a while, consumers and content owners alike viewed this as an add-on to their normal cable subscription. However, as Netflix's library expanded over the years, cancelling cable entirely became more and more viable.

The result has been an increase in "cord-cutters," and many industry analysts believe that traditional cable networks are in a weak position. We agree. The TV networks will likely see decreasing subscriber fees due to fewer subscribers; they may see pressure on ad revenues as well, since the average time spent on Netflix – currently over an hour per day – is time not spent watching ads. Meanwhile, the cost to produce video content is going up, spurred partially by Netflix's own spending.

Thus, for many cable networks, profits are stagnant to down and valuations are compressed; CBS, Viacom, and Discovery all trade at 7-8x this year's earnings.

Recorded music is different. Prior to streaming, the music industry didn't have subscription revenues, and industry revenues had been decimated by piracy. Thus, there will be no industry disruption in the Clayton Christensen sense. As it stands today, streaming revenues are almost totally additive for the content owners, and there is no innovator's dilemma associated with embracing them. For this reason, we think the effect on the industry will be starkly different.

Said another way, both the TV and music industries are seeing a material chunk of consumers move towards a standard $15 per month subscription for streaming access to a vast swath of content. For TV networks, this is often displacing a $60-80 per month subscription. In the music world, this has displaced little revenue, and has already created significant additional revenue for both content owners and artists.

We think music industry revenues will continue to expand, and most of this incremental revenue will accrue to the labels.

Is the music label model sustainable?

We have shown why we think music content owners (the labels) are in a strong position today, but is this sustainable? Where are labels likely to be in 5-10 years in terms of bargaining power? Since artists can have a direct relationship with their fans via social media, and streaming platforms control distribution, what is the point of a music label?

We think labels are still important to the economics of the music industry and will remain so over the next 10 years.

Labels own the entire back catalog of music and will own most of the content produced for the next 5-10 years. Labels own most of the important music going back 40 years. Not only that, but most major acts are currently on multi-record deals. This means that most of the important music being made in the next 5-10 years will be owned by the labels.

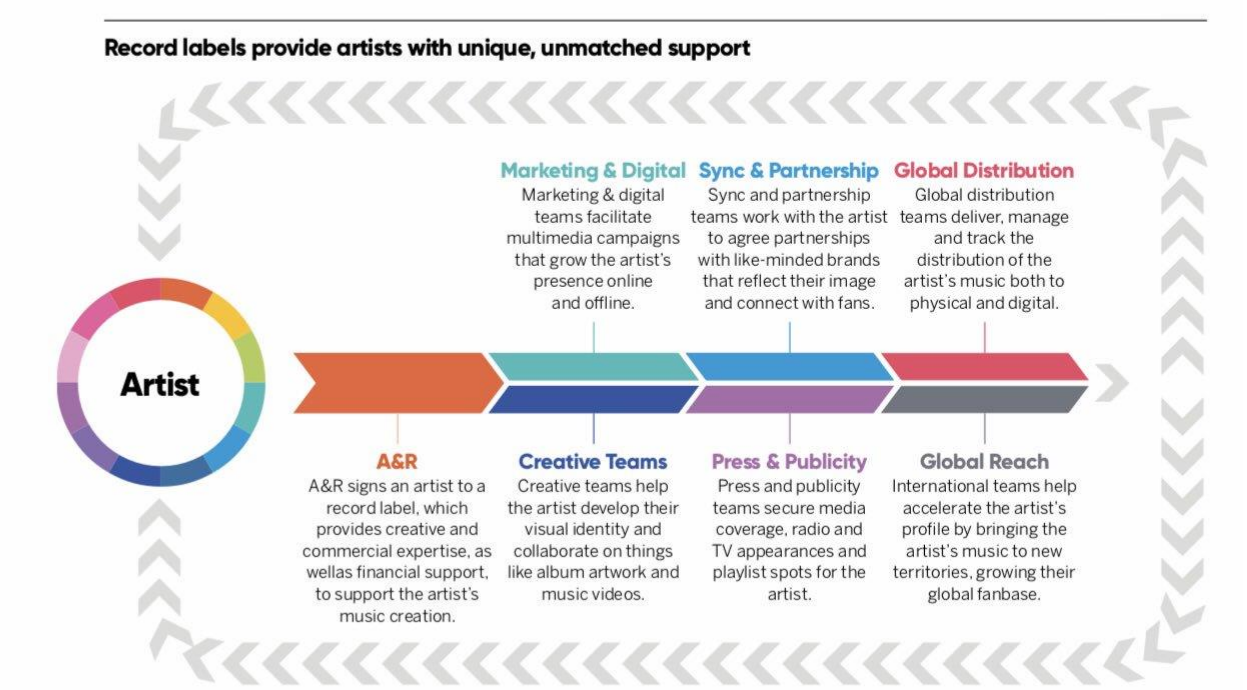
Labels take financial risk on new acts. While it is more and more possible to go the shoestring route, most new acts don't end up being hits, and it still costs significant money to market a new act. Even if you go viral, it generally still makes sense for you to sign with a major label, like Lil Nas X did after his viral hit "Old Town Road." Most viral acts are at risk of being one-hit wonders without the sustained marketing, music production, and distribution support that acts receive when working with a label.

As one JP Morgan report puts it, most artists would rather have 20% of something than 100% of nothing; their view is that most bands have virtually no chance of breaking out on their own[3]. Labels spend between $500k to $2m trying to break new artists, and most of them fail.

On the other hand, already-established artists will have a lot of bargaining power in the streaming world, and some have started to ask for ownership of future albums or a higher cut of revenues. But there is plenty of money to go around: we forecast UMG's revenues to increase €3.5b by 2023. This will allow the company to grow expenses by €2.3b per year and simultaneously double their profits. Most of those extra costs will go towards compensating artists.

[3] Kerven & Diebel, *Music Matters.*

Labels have expertise in marketing and album production. Music labels help artists find the right songwriters, producers, singers, and studios to create albums. Label execs are experts in old-school marketing such as radio placement, billboard advertising, music video production, and promotional events. All of this is still important in taking tracks to the top of the chart. The following slide from the IFPI 2019 Global Music Report describes the value proposition of the labels in more detail:



We think these services will remain important for a long time.

In summary:

1. The music industry will grow due to streaming revenues.
2. Labels will benefit (as seen already in UMG's recent results).
3. Labels are likely to retain most of the streaming profits due to control over back catalog.
4. The power of labels is unlikely to materially decrease over the next decade.
5. This will result in profit growth at UMG, Vivendi, and Bollore.

OUR FORECASTS

Vivendi

We forecast UMG's streaming revenues to grow from €2.6B in 2018 to €6.9B in 2023, with revenue growth starting at 30% and declining to 12%. The near-term projections are in line with recent growth, which includes a 28% increase in streaming revenues in Q1 2019. Longer-term growth rates are roughly equivalent to Street estimates for growth in Spotify's business.

Streaming revenues are high margin. In 2018, incremental margin for UMG was about 40%. We assume 35% going forward.

The result is a forecast for UMG to grow EBIT from €900m in 2018 to €2.3B in 2023. This falls right to Vivendi's bottom line, which we estimate to increase from €945m to €2.1 billion after taxes.

Bollore's passthrough income from Vivendi should expand from €229m to €500m. In 2023, most of Bollore's earnings will come via Vivendi.

Bollore SA - Base case

In the base case, we forecast an increase in Bollore's earnings from €24c per share in 2018 to €52c per share over the next five years, driven by:

- Vivendi growth.
- Logistics operating income growing from €511m to €571m.
- Decline in losses at the battery business from €150m to €100m.
- Growth in earnings on its Vivendi stake from €229m to €503m.

Given the quality of the Vivendi business, and the fact that this will make up most of Bollore's earnings, we think the stock ought to trade for at least 15x earnings in 2023. That would put it at €7.83 per share, nearly double its current value.

The IRR in this scenario is about 19%. See the appendix for more detailed projections.

Bollore SA – Upside case

The assumptions that drive further upside in Bollore are:

- Battery business is shut down or breaks even by 2023.
- 49% of UMG is sold at a valuation of €40b and used to buy back Vivendi shares.
- Shares trade at 20x earnings.

The battery business currently loses €150m per year, but Bollore is one of a very small group of companies that are leading the race for the next generation of battery technology. In fact, Bollore is the only company that is currently producing solid-state batteries at scale. They sell them mostly to their electric car rental business that has operations in London, LA, and Indianapolis. This rental business is the segment driving the losses.

We believe there is a decent chance that the car rental portion fails but that Bollore can profitably monetize the battery manufacturing business. In fact, they already have a backlog of orders for their next-generation solid-state battery that is hitting the market in late 2019. Paris's metro authority, RATP, has selected Bollore's BlueBus as one of three providers to supply hundreds of electric buses. Bollore also has a 45 battery order from Mercedes's eCitaro unit, which is building buses for the German town of Weisbaden. We would not be surprised to see Bollore emerge as the dominant supplier of solid-state batteries to European bus OEMs.

To give you a sense of the opportunity, Daimler AG's bus unit (Daimler owns Mercedes) does about €4B of sales per year. Volkswagen's "commercial vehicles" segment does €30B. Volkswagen has also invested $100m in a solid-state battery company and thinks they can put them into production by 2025. Like Daimler, Volkswagen clearly sees promise in solid-state technology.

Most commercial vehicles sold in Europe will probably transition to electric sometime in the next 10-20 years, and based on the orders by Weisbaden and Paris, it seems possible that many will use solid-state batteries. Paris has some aggressive plans for electrification of its bus fleet. In fact, they may never purchase gas-powered buses again: Paris will replace their entire existing fleet by 2025, having ordered 1,000 electric buses from Bollore and others.

It remains to be seen whether Bollore can develop their solid-state technology to the point that it can be used profitably in passenger cars in addition to buses. But as the only company currently producing this technology at any kind of scale, we believe they have as good of a shot as anyone. Therefore, it seems entirely reasonable for them to continue funding the battery segment, in the hopes that it will one day turn into a multibillion dollar business.

As conservative value investors, we don't often make bets on the viability of complex, emerging technologies. Thus, we find it prudent to model continuing battery losses in our base case. However, in a bull case, we think we are justified in assuming that by 2023 the segment is either a) at break even, b) shut down, or c) sold. We express this by assuming a value of zero for battery segment earnings.

While a bid of €20b for half of UMG is an optimistic valuation, we think it is quite possible.

- The business is growing >10% with a path to €2b in profits.
- The most profitable part of the business (streaming) is growing >25%.
- Music is key to the business plans of internet giants like Google, Amazon, Apple, and Tencent.
- The asset is irreplaceable, and forms part of a global triopoly.

Our upside case also assumes a 20x multiple for Bollore, which we find to be the least aggressive key assumption. Given that most of Bollore's earnings will be from Vivendi in 2023 and some of Bollore's key logistics comps already trade for this valuation today, a 20x terminal multiple seems reasonable. However, since this figure is based on our adjusted share count, this implicitly requires either the market to "figure it out," or some type of change to the company structure.

The latter may be more likely than ever. As Vincent Bollore, patriarch of this incarnation of the Bollore Group, approaches his retirement in February 2022, he may become more focused on the stock price. All else equal, a higher stock price will look better.

It is also notable that the French Florange law, which gives double voting power to two-year seasoned shareholders, may allow the family to keep effective control of Bollore even if the structure is collapsed. The Florange law only applies to beneficial owners registered directly with the company, and generally does not apply to foreign shareholders or to shares held in "Street name." This would roughly double the voting power of Bollore's stake in the simplified structure. While this would not give him full control, it would greatly reduce the chance of an activist getting involved in the family business (the key risk of simplifying the structure).

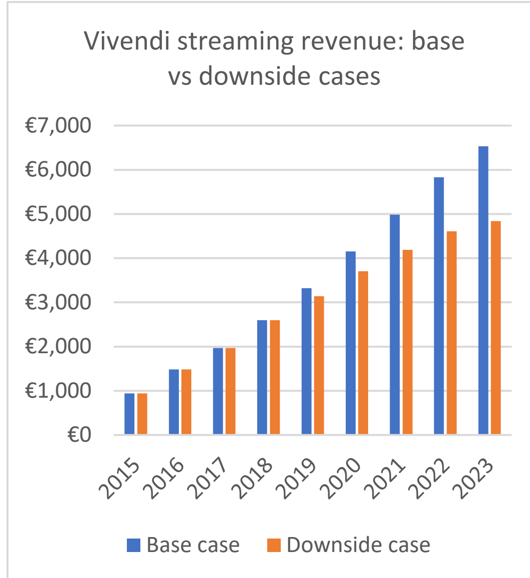
If this upside scenario is realized, the IRR generated would be over 30%.

Bollore SA: Downside case

The key downside case assumptions are:

- UMG streaming growth that is 7% lower annually than in the base/upside cases.
- No sale of UMG.
- €150m of losses in the battery segment.
- A terminal 10x PE multiple.

The first assumption incorporates a great of deal of conservatism into the forecasts for Vivendi, and thus for Bollore as a whole. The graph below shows how 7% lower growth translates into revenues: it implies a decrease of €1.7B in 2023, from €6.5b in the base case to €4.8b in the downside case. This causes Vivendi earnings to grow to merely €1.18 per share, rather than the €1.52 forecasted in the base case.



The battery segment losing €150m seems drastic, as it implies that future orders (some already received) for Bollore-built batteries do not improve the financials at all, and management is too stubborn to shut down or sell the business.

We think this set of assumptions is overly conservative but would still generate a small positive return of just under 6% per year.

CONCLUSION

Due to various biases, investors seem to be undervaluing Bollore stock in the public markets.

- Availability bias: focusing on the stated Bollore share count of 2.9b rather than the true economic share count of 1.4b.

- Anchoring bias and representativeness bias: failing to realize that the music label business is being completely transformed, in a positive way, by the success of streaming platforms.

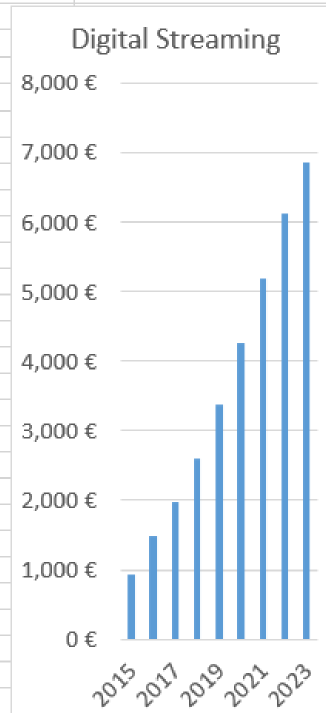
We think investors willing to look at the music industry with fresh eyes will see its long-term value. The best way to capture that upside is by purchasing shares of Bollore, which, according to our conservative base-case assumptions, can double over a five-year period.

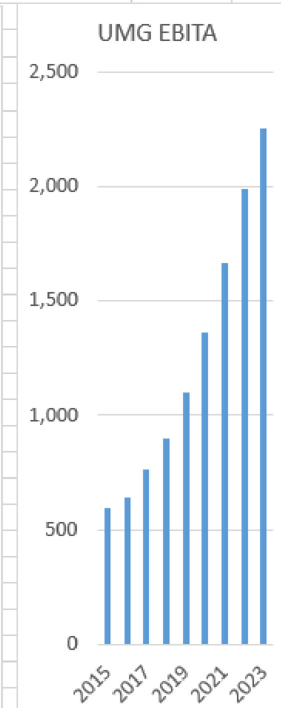
Appendix: Vivendi projections

Model inputs are in blue and red font.

	UNIVERSAL MUSIC GROUP RESULTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023
Physical Sales	1,439 €	1,225 €	1,156 €	949 €	807 €	686 €	583 €	495 €	421 €
Digital album sales	1,012 €	755 €	685 €	479 €	311 €	202 €	132 €	86 €	56 €
Digital Streaming	939 €	1,483 €	1,971 €	2,596 €	3,375 €	4,252 €	5,188 €	6,122 €	6,856 €
yoy physical	1.6%	-14.9%	-5.6%	-17.9%	-15.0%	-15.0%	-15.0%	-15.0%	-15.0%
yoy digital album		-25.4%	-9.3%	-30.1%	-35.0%	-35.0%	-35.0%	-35.0%	-35.0%
yoy digital streaming		57.9%	32.9%	31.7%	30.0%	26.0%	22.0%	18.0%	12.0%
spotify growth (and estimates as of 4/25/19)		*52.1%*	*38.6%*	*28.6%*	*26.7%*	*23.6%*	*21.4%*	*19.0%*	
License and other	€684	€725	€747	€804	€844	€886	€931	€977	€1,026
Music Publishing	€756	€792	€854	€941	€988	€1,037	€1,089	€1,144	€1,201
Merchandising and other	€276	€313	€260	€254	€267	€280	€294	€309	€324
Total UMG revenues	**€5,107**	**€5,293**	**€5,673**	**€6,023**	**€6,592**	**€7,344**	**€8,216**	**€9,132**	**€9,884**
yoy	*11.2%*	*3.6%*	*7.2%*	*6.2%*	*9.4%*	*11.4%*	*11.9%*	*11.1%*	*8.2%*
UMG EBITA	593	644	761	902	1,101	1,364	1,670	1,990	2,253
margin	11.6%	12.2%	13.4%	15.0%	16.7%	18.6%	20.3%	21.8%	22.8%
contribution margin	*5.5%*	*27.4%*	*30.8%*	*40.3%*	35%	35%	35%	35%	35%
UMG vivendi-owned EBITA	€593	€644	€761	€902	€562	€696	€852	€1,015	€1,149
CANAL TV BUSINESS									
Total EBITA Canal	454 €	240 €	300 €	400 €	425 €	450 €	475 €	500 €	500 €
Havas EBITA post restructuring			212 €	215 €	219 €	224 €	228 €	233 €	237 €
Total Non-UMG EBITA	454 €	240 €	512 €	615 €	644 €	674 €	703 €	733 €	737 €
Corporate EBITA	-€104	-€167	-€203	-€229	-€225	-€225	-€225	-€225	-€225
Total Vivendi EBIT	€943	€717	€1,070	€1,288	€981	€1,145	€1,330	€1,523	€1,662
Interest	-€30	-€30	-€30	-€30	€0	€0	€0	€0	€0
PBT	€913	€687	€1,040	€1,258	€981	€1,145	€1,330	€1,523	€1,662
Taxes	-€228	-€172	-€260	-€315	-€245	-€286	-€332	-€381	-€415
Net Income	**€685**	**€515**	**€780**	**€944**	**€736**	**€858**	**€997**	**€1,142**	**€1,246**
Vivendi shares	1,306	1,306	1,306	1,306	630	630	630	630	630
TOTAL VIVENDI EPS	**0.52**	**0.39**	**0.60**	**0.72**	**1.17**	**1.36**	**1.58**	**1.81**	**1.98**

Physical album sales YoY	-15%
Digital album sales YoY	-35%
License, publishing, merch	5%
Tax rate	23.00%
Growth of Havas OpInc	2%
UMG incremental margin	35.00%

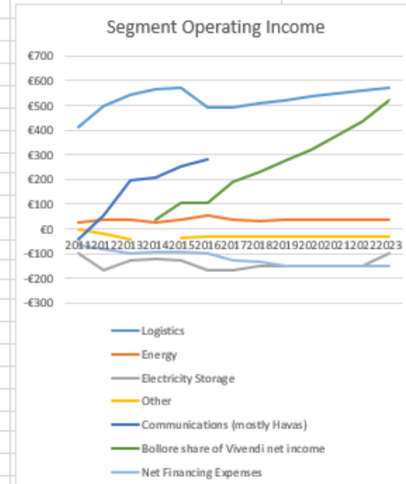




Appendix: Base case projections

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
REVENUE													
Total Logistics	€4,872	€5,416	€5,469	€5,629	€6,051	€5,458	€5,762	€6,007					
Energy				€2,781	€2,238	€1,965	€2,162	€2,699					
Communications				€1,931	€2,247	€2,321							
Electricity Storage				€237	€265	€310	€314	€312					
Other					€25	€22	€21	€22					
OPERATING INCOME													
Logistics	€414	€496	€541	€567	€569	€490	€491	€511	€523	€535	€547	€559	€571
Energy	€28	€39	€39	€26	€37	€54	€36	€34	€40	€40	€40	€40	€40
Electricity Storage	-€100	-€168	-€126	-€120	-€126	-€168	-€165	-€152	-€150	-€150	-€150	-€150	-€100
Other	-€5	-€21	-€43		-€34	-€31	-€28	-€31	-€30	-€30	-€30	-€30	-€30
Communications (mostly Havas)	-€45	€57	€194	€210	€255	€282							
Operating Income	**€292**	**€403**	**€605**	**€683**	**€701**	**€627**	**€334**	**€362**	**€383**	**€395**	**€407**	**€419**	**€481**
OTHER COSTS													
Net Financing Expenses	-€67	-€83	-€100	-€95	-€92	-€101	-€128	-€131	-€150	-€150	-€150	-€150	-€150
Other financing Expenses			€56	-€69	-€57	-€70	€0	€0	€0	€0	€0	€0	€0
Less: Logistics Minority Interest				-€111	-€103	-€83	-€103	-€115	-€115	-€118	-€120	-€123	-€126
Less: Havas Minority Interest			-€78	-€84	-€102	-€113							
PBT				€408	€449	€373	€103	€116	€118	€127	€137	€146	€205
taxes				-€102	-€112	-€93	-€26	-€29	-€29	-€32	-€34	-€37	-€51
Bollore share of Vivendi net income				€39	€103	€105	€189	€229	€273	€324	€378	€436	€523
net income				**€344**	**€440**	**€385**	**€267**	**€316**	**€362**	**€419**	**€481**	**€546**	**€677**
Less: Logistics net capex							-€174	-€92	-€100	-€100	-€100	-€100	-€100
Plus: Minority interest share of net capex							€36	€21	€22	€22	€22	€22	€22
FCF							€129	€245	€284	€341	€403	€468	€599
P/E ratio				*16.0x*	*12.5x*	*14.3x*	*20.6x*	*17.4x*	*15.2x*	*13.1x*	*11.5x*	*10.1x*	*8.1x*
EPS				**€0.25**	**€0.32**	**€0.28**	**€0.19**	**€0.23**	**€0.26**	**€0.30**	**€0.34**	**€0.39**	**€0.49**
FCF/share							€0.09	€0.18	€0.20	€0.24	€0.29	€0.34	€0.43
												Terminal Value	€7.29
							IRR FLOWS	**-€3.95**	**€0.20**	**€0.24**	**€0.29**	**€0.34**	**€7.72**
Vivendi EPS				€0.56	€0.52	€0.39	€0.60	€0.72	€0.86	€1.02	€1.19	€1.38	€1.52
Shares owned			67.0	69.5	196.4	265.8	317.0	317.0	317.0	317.0	317.0	317.0	343.2
Vivendi contribution to Bollore net income			€0.00	€38.67	€102.97	€104.86	€189.33	€229.01	€273.47	€323.78	€378.03	€436.27	€522.74

Reported shares	2908
Treasury shares %	52%
Econnomic shares	**1392.9**
Price per share	$3.95
tax rate	25%
UMG sale value	$40,000
UMG portion sold	49%
IRR	**18.8%**
Variables changed for upside case	
UMG sale?	NO
terminal mult	15.00x
2023 Electricity segment loss	-€100
Vivendi case used	BASE



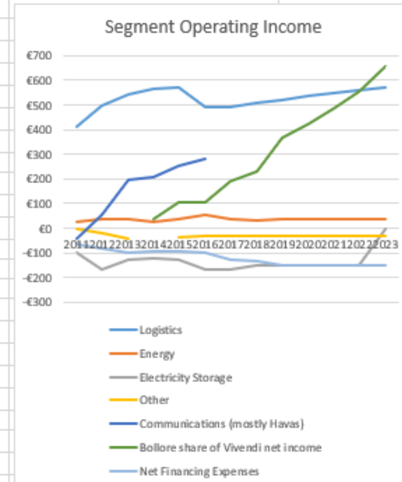
Appendix: Upside case projections

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
REVENUE													
Total Logistics	€4,872	€5,416	€5,469	€5,629	€6,051	€5,458	€5,762	€6,007					
Energy				€2,781	€2,238	€1,965	€2,162	€2,699					
Communications				€1,931	€2,247	€2,321							
Electricity Storage				€237	€265	€310	€314	€312					
Other					€25	€22	€21	€22					
OPERATING INCOME													
Logistics	€414	€496	€541	€567	€569	€490	€491	€511	€523	€535	€547	€559	€571
Energy	€28	€39	€39	€26	€37	€54	€36	€34	€40	€40	€40	€40	€40
Electricity Storage	-€100	-€168	-€126	-€120	-€126	-€168	-€165	-€152	-€150	-€150	-€150	-€150	€0
Other	-€5	-€21	-€43		-€34	-€31	-€28	-€31	-€30	-€30	-€30	-€30	-€30
Communications (mostly Havas)	-€45	€57	€194	€210	€255	€282							
Operating Income	**€292**	**€403**	**€605**	**€683**	**€701**	**€627**	**€334**	**€362**	**€383**	**€395**	**€407**	**€419**	**€581**
OTHER COSTS													
Net Financing Expenses	-€67	-€83	-€100	-€95	-€92	-€101	-€128	-€131	-€150	-€150	-€150	-€150	-€150
Other financing Expenses			€56	-€69	-€57	-€70	€0	€0	€0	€0	€0	€0	€0
Less: Logistics Minority Interest				-€111	-€103	-€83	-€103	-€115	-€115	-€118	-€120	-€123	-€126
Less: Havas Minority Interest			-€78	-€84	-€102	-€113							
PBT				€408	€449	€373	€103	€116	€118	€127	€137	€146	€305
taxes				-€102	-€112	-€93	-€26	-€29	-€29	-€32	-€34	-€37	-€76
Bollore share of Vivendi net income				€39	€103	€105	€189	€229	€367	€425	€488	€555	€655
net income				**€344**	**€440**	**€385**	**€267**	**€316**	**€455**	**€521**	**€590**	**€664**	**€884**
Less: Logistics net capex							-€174	-€92	-€100	-€100	-€100	-€100	-€100
Plus: Minority interest share of net capex							€36	€21	€22	€22	€22	€22	€22
FCF							€129	€245	€377	€443	€512	€586	€806
P/E ratio				*16.0x*	*12.5x*	*14.3x*	*20.6x*	*17.4x*	*12.1x*	*10.6x*	*9.3x*	*8.3x*	*6.2x*
EPS				**€0.25**	**€0.32**	**€0.28**	**€0.19**	**€0.23**	**€0.33**	**€0.37**	**€0.42**	**€0.48**	**€0.63**
FCF/share							€0.09	€0.18	€0.27	€0.32	€0.37	€0.42	€0.58
												Terminal Value	€12.69
							IRR FLOWS	**-€3.95**	**€0.27**	**€0.32**	**€0.37**	**€0.42**	**€13.27**
Vivendi EPS				€0.56	€0.52	€0.39	€0.60	€0.72	€1.16	€1.34	€1.54	€1.75	€1.91
Shares owned			67.0	69.5	196.4	265.8	317.0	317.0	317.0	317.0	317.0	317.0	343.2
Vivendi contribution to Bollore net income			€0.00	€38.67	€102.97	€104.86	€189.33	€229.01	€366.53	€425.14	€487.92	€554.94	€655.03

Reported shares	2908
Treasury shares %	52%
Econnomic shares	**1392.9**
Price per share	**$3.95**
tax rate	**25%**
UMG sale value	**$40,000**
UMG portion sold	**49%**
IRR	**32.4%**

Variables changed for upside case

UMG sale?	YES
terminal mult	20.00x
2023 Electricity segment loss	€0
Vivendi case used	BASE



Appendix: Downside case projections

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
REVENUE													
Total Logistics	€4,872	€5,416	€5,469	€5,629	€6,051	€5,458	€5,762	€6,007					
Energy				€2,781	€2,238	€1,965	€2,162	€2,699					
Communications				€1,931	€2,247	€2,321							
Electricity Storage				€237	€265	€310	€314	€312					
Other					€25	€22	€21	€22					
OPERATING INCOME													
Logistics	€414	€496	€541	€567	€569	€490	€491	€511	€523	€535	€547	€559	€571
Energy	€28	€39	€39	€26	€37	€54	€36	€34	€40	€40	€40	€40	€40
Electricity Storage	-€100	-€168	-€126	-€120	-€126	-€168	-€165	-€152	-€150	-€150	-€150	-€150	-€150
Other	-€5	-€21	-€43		-€34	-€31	-€28	-€31	-€30	-€30	-€30	-€30	-€30
Communications (mostly Havas)	-€45	€57	€194	€210	€255	€282							
Operating Income	**€292**	**€403**	**€605**	**€683**	**€701**	**€627**	**€334**	**€362**	**€383**	**€395**	**€407**	**€419**	**€431**
OTHER COSTS													
Net Financing Expenses	-€67	-€83	-€100	-€95	-€92	-€101	-€128	-€131	-€150	-€150	-€150	-€150	-€150
Other financing Expenses			€56	-€69	-€57	-€70	€0	€0	€0	€0	€0	€0	€0
Less: Logistics Minority Interest				-€111	-€103	-€83	-€103	-€115	-€115	-€118	-€120	-€123	-€126
Less: Havas Minority Interest			-€78	-€84	-€102	-€113							
PBT				€408	€449	€373	€103	€116	€118	€127	€137	€146	€155
taxes				-€102	-€112	-€93	-€26	-€29	-€29	-€32	-€34	-€37	-€39
Bollore share of Vivendi net income				€39	€103	€105	€189	€229	€262	€295	€327	€358	€406
net income				**€344**	**€440**	**€385**	**€267**	**€316**	**€350**	**€391**	**€430**	**€468**	**€522**
Less: Logistics net capex							-€174	-€92	-€100	-€100	-€100	-€100	-€100
Plus: Minority interest share of net capex							€36	€21	€22	€22	€22	€22	€22
FCF							€129	€245	€272	€313	€352	€390	€444
P/E ratio				*16.0x*	*12.5x*	*14.3x*	*20.6x*	*17.4x*	*15.7x*	*14.1x*	*12.8x*	*11.8x*	*10.5x*
EPS				**€0.25**	**€0.32**	**€0.28**	**€0.19**	**€0.23**	**€0.25**	**€0.28**	**€0.31**	**€0.34**	**€0.38**
FCF/share							€0.09	€0.18	€0.20	€0.22	€0.25	€0.28	€0.32
												Terminal Value	€3.75
							IRR FLOWS	-€3.95	€0.20	€0.22	€0.25	€0.28	€4.07
Vivendi EPS				€0.56	€0.52	€0.39	€0.60	€0.72	€0.83	€0.93	€1.03	€1.13	€1.18
Shares owned			67.0	69.5	196.4	265.8	317.0	317.0	317.0	317.0	317.0	317.0	343.2
Vivendi contribution to Bollore net income			€0.00	€38.67	€102.97	€104.86	€189.33	€229.01	€261.89	€295.30	€327.32	€358.26	€405.89

Reported shares	2908
Treasury shares %	52%
Econnomic shares	**1392.9**
Price per share	**$3.95**

tax rate	**25%**
UMG sale value	**$40,000**
UMG portion sold	**49%**
IRR	**5.5%**

Variables changed for upside case

UMG sale?	NO
terminal mult	10.00x
2023 Electricity segment loss	-€150
Vivendi case used	DOWNSIDE