

RosaeNLG

2021 - 2nd meetup

4 JANVIER 2021 at 09:00

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A KEY PLAYER IN EUROPEAN EQUITIES



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No.1

Developed
Europe
Research*

**2020 All-Europe Institutional Investor Survey.*

No.1

Industry
Research*

€330 bn

in Pan-European
volumes traded
(in 2019)

250

Analysts, sales,
sales-traders
and traders



Agenda

The project goals

Functional ecosystem

Technical architecture

The data, the rules, RosaeNLG output

The final product

Next steps

Q & A

The project goals

1. **Produce automated comments** of company financial statements data
2. **Build a core knowledge base** of financial analysis rules and apply them over a large set of industrial firms
3. **Use a multilingual corpus** of financial texts, rather than translating each document

Our first NLG project is promising

Exane BNP Paribas Functional ecosystem

1. CUBE our client web site
2. SAKE the financial database, over 30 years of data, for ~800 European and US firms
3. La Grid a matrix of 1,200 financial indicators for each firm

La Grid Price: 83.1 x Capitalized development costs restated in Exane adjusted profit figures. Adjusted net

PER SHARE DATA (€)	Trend	Lo-Avg-H (99-23)	€ 18	Dec. 19	Dec. 20	Dec. 21	Dec. 22	Dec. 23
No of shares year end, basic, (m)		715.05	795.61	827.37	767.37	783.17	783.17	783.17
No of shares, diluted, restated for treasury stock (m)		715.05	795.97	821.31	30.94	777.04	792.31	782.31
Price		12.3	45.1	119.3	27.6	119.3	80.3	83.1
EPS restated, fully diluted		(0.09)	2.22	5.97	5.15	3.99	0.77	3.41
% change		(95.0)	18.1	340.7	39.7	(30.4)	(78.4)	340.7
EPS reported GAAP		(1.75)	1.51	5.94	3.94	(1.75)	2.01	3.38
EPS company definition		0.74	3.16	6.07	5.22	6.07	0.74	3.38
CFPS		(2.54)	3.71	6.84	4.02	2.22	2.05	4.75
EV/PS		4.7	11.5	21.2	12.5	7.6	9.6	13.0
Net dividend		0.00	0.72	2.38	1.65	0.00	0.00	1.35
Sales PS		31.54	60.11	90.70	11.58	90.70	61.73	66.89
EBITDA PS		2.77	6.11	10.79	3.40	6.80	9.33	7.14
EBTA PS		1.60	3.75	6.01	3.48	3.23	5.63	4.50

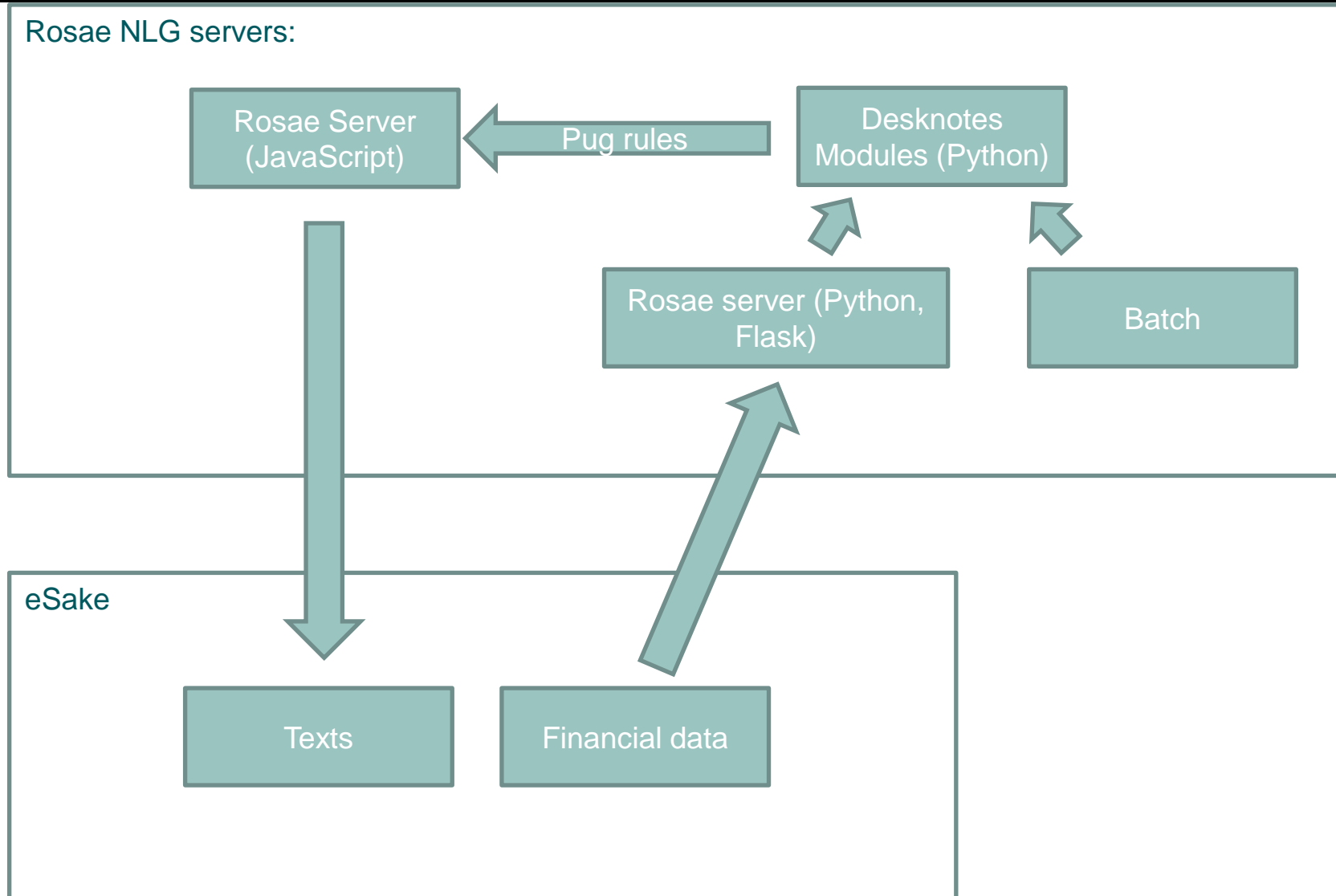
STOCKMARKET RATIOS	Trend	Lo-Avg-H (99-23)	€ 18	Dec. 19	Dec. 20	Dec. 21	Dec. 22	Dec. 23
P/E (x)		6.0	28.6	103.8	16.9	32.3	103.8	24.4
P/E rel to MSCI Europe		0.50	1.28	4.71	1.26	2.44	4.71	1.45
P/CF (x)		2.5	12.3	53.8	24.2	53.8	39.2	17.5
FCF yield (%)		(14.1)	5.2	22.4	0.3	1.7	(14.1)	(0.1)
Debt adjusted FCF yield (%)		(12.3)	3.7	14.3	0.1	1.5	(12.3)	(0.2)
F/EBVPS (x)		0.81	4.06	15.63	7.78	15.63	8.32	6.38
Net yield (%)		0.0	1.8	3.2	1.7	0.0	0.0	1.6
Payd (x)		0.0	28.7	49.4	32.0	0.0	0.0	39.6
EV / Sales (x)		0.33	0.79	1.49	1.18	1.40	1.49	1.42
EV / Restated EBITDA (x)		3.2	7.6	18.7	10.2	18.7	9.9	13.4
EV / EBITDA (x)		4.7	12.9	38.3	14.8	38.3	16.3	21.2
EV / INOPAT (x)		7.1	19.3	56.2	22.2	56.2	22.7	29.4
EV / OpCF (x)		5.3	31.7	194.4	72.5	33.7	95	16.3
EV / ICE gross goodwill (x)		0.8	4.9	14.5	9.7	14.5	4.5	4.6

ENTERPRISE VALUE (€m)	Trend	Lo-Avg-H (99-23)	€ 18	Dec. 19	Dec. 20	Dec. 21	Dec. 22	Dec. 23
Market cap		9,983	35,456	92,967	5,613	92,967	62,789	65,018
+ Adjusted net debt		(6,876)	(4,538)	(4,505)	(6,876)	(6,233)	(1,040)	(1,025)
+ Other liabilities and commitments		3,266	11,495	23,552	7,670	23,552	17,095	17,213
+ Revalued minority interests		3	241	4,004	15	52	69	126
- Revalued investments		1,022	5,887	9,972	1,491	9,972	8,972	8,972
+ Enterprise value		14,189	40,116	95,829	6,516	96,820	72,814	74,542

P & L HIGHLIGHTS (€m)	Trend	Lo-Avg-H (99-23)	€ 18	Dec. 19	Dec. 20	Dec. 21	Dec. 22	Dec. 23
Sales		22,553	47,580	70,478	3,787	70,478	48,233	54,365
Restated EBITDA		1,983	4,833	8,445	1,343	5,285	7,296	5,582
Depreciation		(2,890)	(1,846)	(802)	(2,894)	(2,777)	(2,890)	(2,120)
Restated EBITA		1,191	2,987	6,284	1,059	2,508	4,406	3,462
Reported operating profit (loss)		(322)	2,458	6,806	1,048	1,335	2,972	3,814
Net financial income (charges)		(1,846)	(473)	(1,149)	(763)	(275)	(853)	(211)
Attributed		0	0	0	0	0	0	0
Exceptional items and other		(1,198)	(134)	820	0	0	0	0
Tax		(2,389)	(640)	333	(274)	(2,389)	(509)	(925)
Minorities		(203)	(24)	43	(37)	(37)	(37)	(37)

A quick demo

Architecture



The data

Step by step

1. Data are accessed via API on the Sake servers and loaded into Python Panda matrices
2. We calculate series min/max, averages, medians and other financial ratios that are used in our rules model

```
211 def getNbConsecutiveNegativeYears(df, i, timeSpan, vis):
212     indicators = ['Result', 'ROCE', 'EBITDA', 'CAPITAL_INCR',
213                 'EBITDA_CONVERSION_IN_FREE_CASH_FLOW', 'CH
214                 'FirstEstimated', 'LastPublished', 'LastEsti
215     indic = indicators[i]
216     colProv = df[indic]
217     m = len(colProv)
218     colonne = colProv[m-vis-timeSpan : m-vis]
219     nb = 0
220
221     for val in colonne:
222         if type(val) != str :
223             if val < 0 :
224                 nb += 1
225             else:
226                 nb = nb
227     return nb
228
```

3. The data surfaces is then fed via a json object to the Rosae NLG engine to mix with the PUG file

The rules

Step by step

1. Rules were expressed by experienced analysts and defined in a pseudo code as:

IF % of (Nb of Years of FCF >0) > 80% AND Last Year FCF < 0 AND 1st Estimated FCF > 0 THEN

Despite having increased in the past, FCF was down in the last 2 years, but we expect it to recover in (FCF1st estimated year).

2. Rules are then written in the PUG file:

```
648 mixin FCFFlowGrowth
649 - var val20 = 0.20 ;
650 - var val80 = 80 ;
651 - var pct200 = 200;
652
653 if stock.Pct_PosFCFLT >= val80
654   if stock.Last2YearsNeg == 2
655     if stock.FirstEstimatedFCF > 0
656       | Despite having #[+FCFregularly] #[+FCFincreased] in the past, FCF was down in the last 2 years,
657       | but we expect it to recover in #{stock.FirstEstimated}.
658       recordSaid('FlowGrowthPositive')
659
```

Where you can also see the synonyms #[+FCFregularly] and injection of the data from the frames #{stock.FirstEstimated}

```
177 mixin FCFregularly
178   synz
179   syn
180   | regularly
181   syn
182   | repeatedly
183   syn
184   | frequently
185   syn
186   | recurrently
187
```


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The output

1. Output is batched in XML files

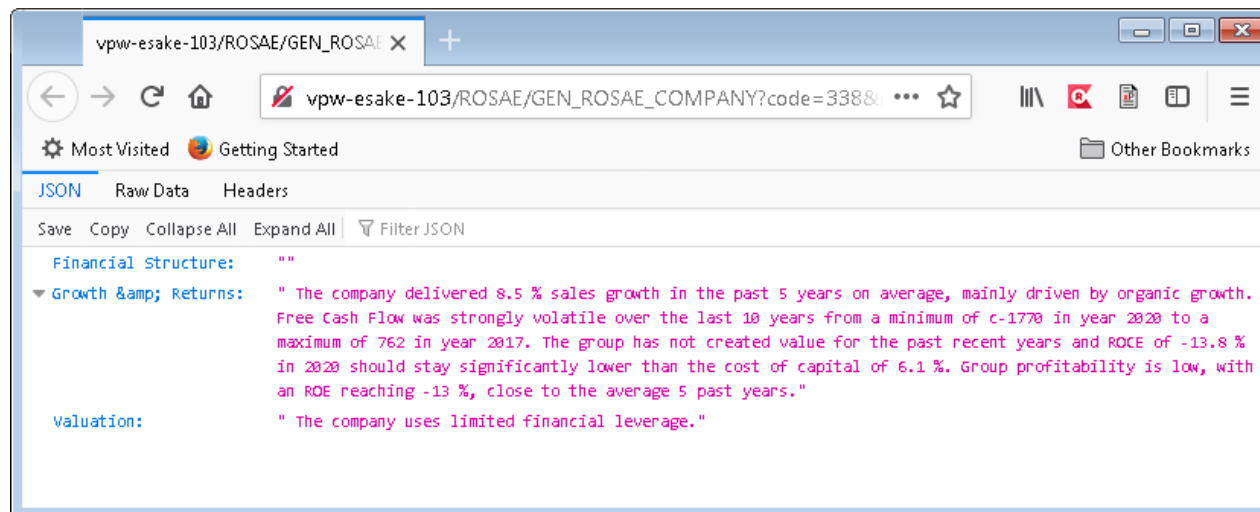
Valuation

The company uses limited financial leverage. Liabilities and commitments other than debt account for 24 % of the EV (The stake in Volkswagen, which is Porsche SE's primary and only material asset, is consolidated by the equity method. Hence EV multiples are irrelevant.).

Growth & Returns

The company delivered 3.2 % sales growth in the past 5 years on average, mainly driven by organic growth. Free Cash Flow was very volatile over the last 10 years from a minimum of c-8864 in year 2020 to a maximum of c3165 in year 2022. The group creates value with a ROCE of 21.3 %, significantly above its cost of capital 10 %.

2. Or accessible for a real time refresh via the server API



The final product

A web site and downloadable document for our clients

Accor =

FINANCIAL HIGHLIGHTS

Per Share data (EUR)	Dec. 17	Dec. 18	Dec. 19	Dec. 20e	Dec. 21e	Dec. 22e
EPS restated, fully diluted	150	127	0.89	(179)	(0.33)	0.70
% change	+46.4%	-15.3%	-30.3%	NC	+61.6%	NC
Book value (BVPS)	18.8	22.4	25.2	22.4	22.0	22.8
Net dividend	1.05	1.05	1.05	0.00	0.00	0.49
Pay out	70.1%	82.7%	118.6%	0.0%	0.0%	70.0%
Valuation metrics	Dec. 17	Dec. 18	Dec. 19	Dec. 20e	Dec. 21e	Dec. 22e
P/E (x)	27.0	34.2	42.9	NC	NC	43.2
Net yield (%)	2.6%	2.4%	2.8%	0.0%	0.0%	1.6%
FCF yield (%)	6.2%	1.1%	3.6%	-8.7%	-1.8%	2.2%
EV/Sales (x)	3.20	3.81	2.91	4.65	3.16	2.63
EV/EBITDA (x)	14.3	19.3	14.3	NC	41.9	15.4
EV/EBITA (x)	17.9	25.0	23.7	NC	NC	29.4
Income statement (EURm)	Dec. 17	Dec. 18	Dec. 19	Dec. 20e	Dec. 21e	Dec. 22e
Sales	2,773	3,610	4,049	2,146	3,193	3,759
Organic sales growth	+7.9%	+8.8%	+3.8%	-52.0%	+64.5%	+28.7%
Restated EBITDA	622	711	825	(347)	241	640
Restated EBITDA margin	22.4%	19.7%	20.4%	-16.2%	7.5%	17.0%
Restated EBITA	496	549	497	(521)	(18)	335
Restated EBITA margin	17.9%	15.2%	12.3%	-24.3%	-0.6%	8.9%
Net Profit (restated)	432	367	241	(485)	(89)	191
ROE	7.9%	5.8%	3.5%	-8.0%	-1.5%	3.1%
ROCE	10.6%	6.9%	5.9%	-9.4%	-0.3%	4.3%
Cash Flow (EURm)	Dec. 17	Dec. 18	Dec. 19	Dec. 20e	Dec. 21e	Dec. 22e
Operating cash flow	1,110	621	749	(390)	204	698
Capex	(189)	(308)	(209)	(140)	(140)	(200)
Free cash flow	762	147	389	(753)	(155)	190
Dividends paid	(163)	(323)	(294)	(282)	0	0
Net debt (EURm)	Dec. 17	Dec. 18	Dec. 19	Dec. 20e	Dec. 21e	Dec. 22e
Adjusted net debt	2,776	2,040	1,912	2,183	2,305	2,083
Net financial debt (cash)	1,889	1,153	785	1,089	1,244	1,055
Gearing	48%	32%	35%	44%	46%	41%
Adj. financial debt / EBITDA	4.5x	2.9x	3.0x	NC	11.9x	4.1x

COMMENTS

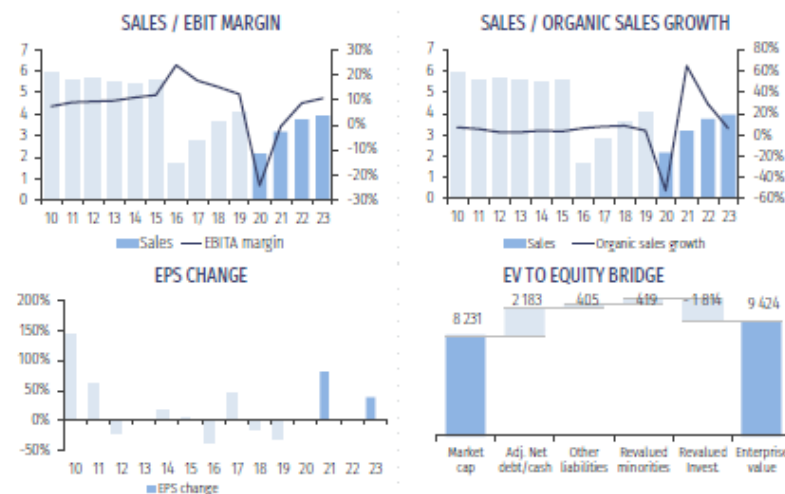
Valuation

The company uses limited financial leverage.

Growth & Returns

The company delivered 8.5 % sales growth in the past 5 years on average, mainly driven by organic growth. Free Cash Flow was fairly volatile over the last 10 years ranging between a minimum of -753 in 2020 and a maximum of 762 in 2017. The group has not created value for the past recent years and ROCE of -9.4 % in 2020 should stay significantly lower than the cost of capital of 6.2 %. Group profitability is low, with an ROE reaching -8 %, close to the average 5 past years.

White
label



Next steps

Our future developments will include:

1. Adding the comments to our client web site Cube
2. French version, and other European languages
3. Improving our comments, that are far away from replacing analysts expertise
4. Creating other use cases around sales marketing

We appreciate your attention!

Happy to answer any questions...

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