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Profit trend and cycle analysis: a long-medium-short term sanity check

Research & Macro Strategy

Profit trend and cycle analysis: a long-medium-short term sanity check

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Multi-Asset Strategy

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The essential

Cycle perspective.

The ongoing expansionary phase of profit cycle likely to last in 2018-19 in US and Europe while in Japan seems more mature with some signal of "fatigue" for 2019.

Trend perspective

Medium term trend looks solid in US Japan less, but still in not in worrisome territory looking at the last 10 years. The Europe one is still fragile and vulnerable to downward pressure as the structural break faced in the last decade has still to be absorbed entirely.

From a more strategic point of view the secular forces that pushed trend structurally higher US profit growth are fading and there's still no evidence of replacement from the new ones like internet revolution and structural decrease in trend growth is likely to cool down

Profits cycle

Profits fluctuations are often related to the economic business cycle as they are a crucial driver for investment decisions and ultimately are an important engine for economic growth.

Historically profits swing around trend with certain regular frequency closely linked with the so called inventories cycle or Kitchin cycle in business cycle theory (usually lasts 3-5 years). This cycle can explain a significant portion of profits volatility, namely the down and up turns, and it's definitely relevant for estimating the turning points from an investment perspective.

There are, however, other important cycles with lower frequency, higher length and more dramatic and structural impact on profits generation. Usually they are influenced by other well-known cycles; for instance the Juglar and Kondratieff cycles which last usually 7-11 and 14-25 years respectively, and they affect persistently the long term trend shifts as they are often related to fixed and infrastructural investments.

There are several factors driving those important, long-lasting swings and every specific macroeconomic variable has its own specific ones. For the profits pattern the most relevant ones are those affect revenues and costs being the latter the 2 legs of profit equation. Structural drivers of revenues and cost have been historically cost of land and increasing productivity and low labour costs after mergers and consolidation (Veblen 1904, 1923), innovations (Schumpeter 1927, 1939), and technology (Kydland and Prescott 1982, Plosser 1989, King et al. 1988).

We can conclude that the historical profits dynamics can be the sum of the trend and cycle components which are driven by different factors and considerations. A comprehensive analysis then should articulate both.

The analysis is organized in 3 sections:

1. Profits and real business cycle approach to EPS time series: detecting trend and cycle components and finding the most relevant statistics for the 2 components.
2. Top line and bottom line constituents are highlighted to give a forward looking perspective according to our internal forecast of key drivers (18 months forward). We analyse key drivers combination to look for factors that affect structurally productivity and labour costs (that would allow a structural improvement in the trend therefore sustainable growth for longer).
3. Profitability metrics and their momentum to identify the point in time of the profit cycle and cross check our projections and to compare with trend and cycle decomposition.

The analysis covers the main important regions (US, Europe and Japan)

Trend-Cycle decomposition: an historical perspective

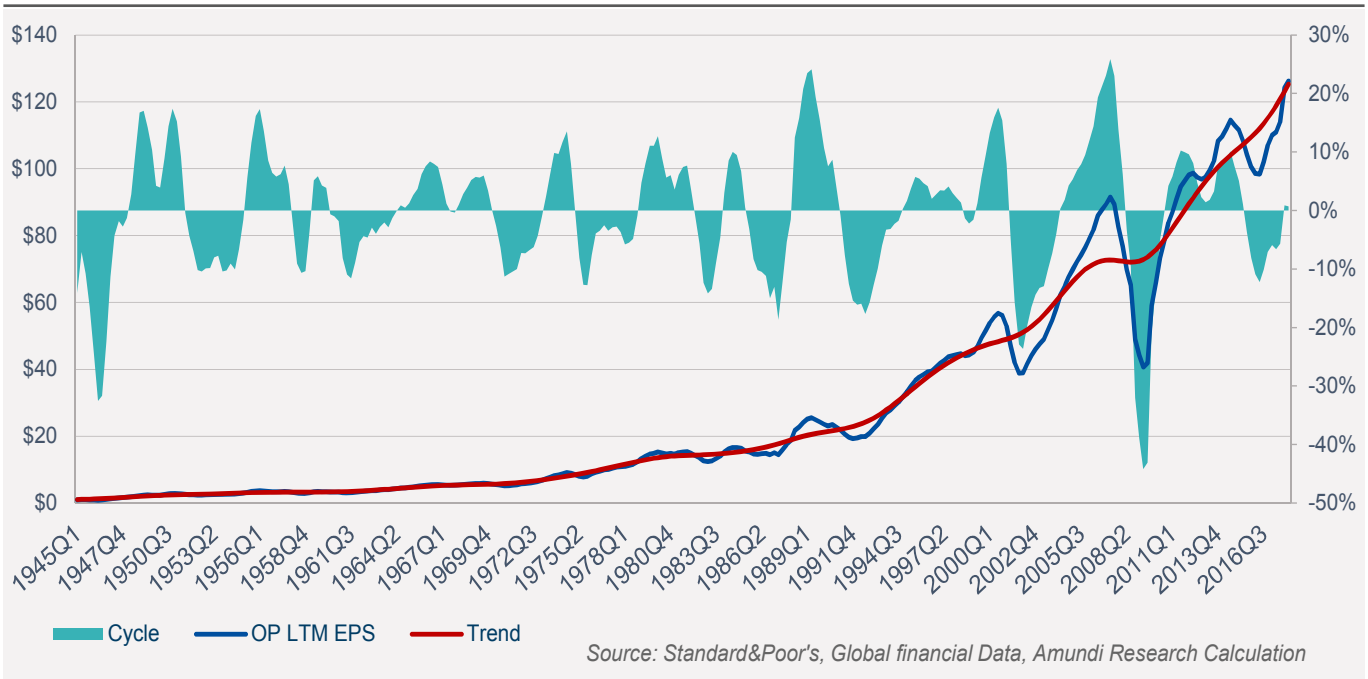
We apply the Hodrick Prescott filter, or the so called Hodrick-Prescott decomposition normally used in real business cycle estimation, in order to assess the main characteristics for profits trend and cycle components.

We calculate the trend and the cycle for:

1. US Operating LTM EPS since dec-1875 to mar-2018
2. Europe Reported LTM EPS since jan-1993 to mar-2018
3. Japan Reported LTM EPS since mar-2000 to mar-2018

1. US EPS trend cycle analysis

1/ **US Op EPS: trend-cycle decomposition**



Source: Standard&Poor's, Global financial Data, Amundi Research Calculation

The chart suggests some preliminary findings:

1. Despite with different intensity the frequency of cycle has been historically regular
2. Trend growth starts to accelerate in the early nineties.

Historical perspective: cycle chronology

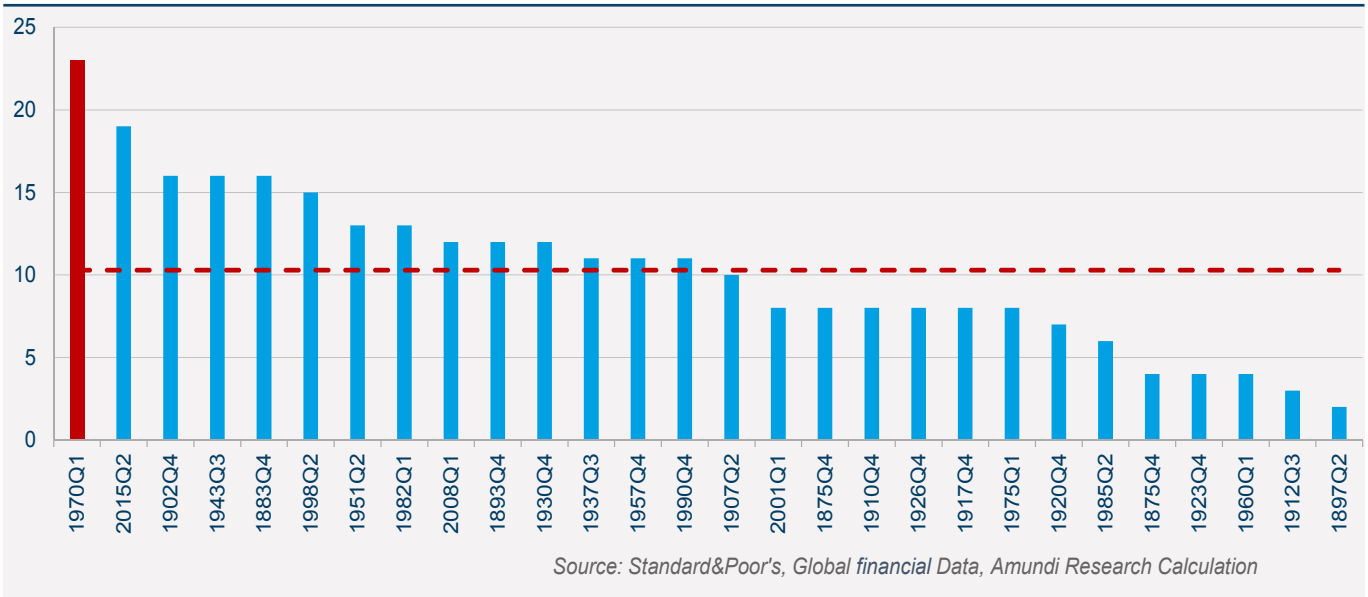
Cycle up and down turns have been effectively quite regular.

Below some useful statistics to evaluate cycle in the past.

Cycle		
	Upturn	Downturn
num. Cycle	28	28
avg quarters length	11	10
median quarters length	10	10
max length	23	18
avg swing	11%	-12%
median swing	8%	-10%
actual Quarters length	3	

Source: Standard&Poor's, Global financial Data, Amundi Research Calculation

2/ **Length of different EPS cycle up**



Source: Standard&Poor's, Global financial Data, Amundi Research Calculation

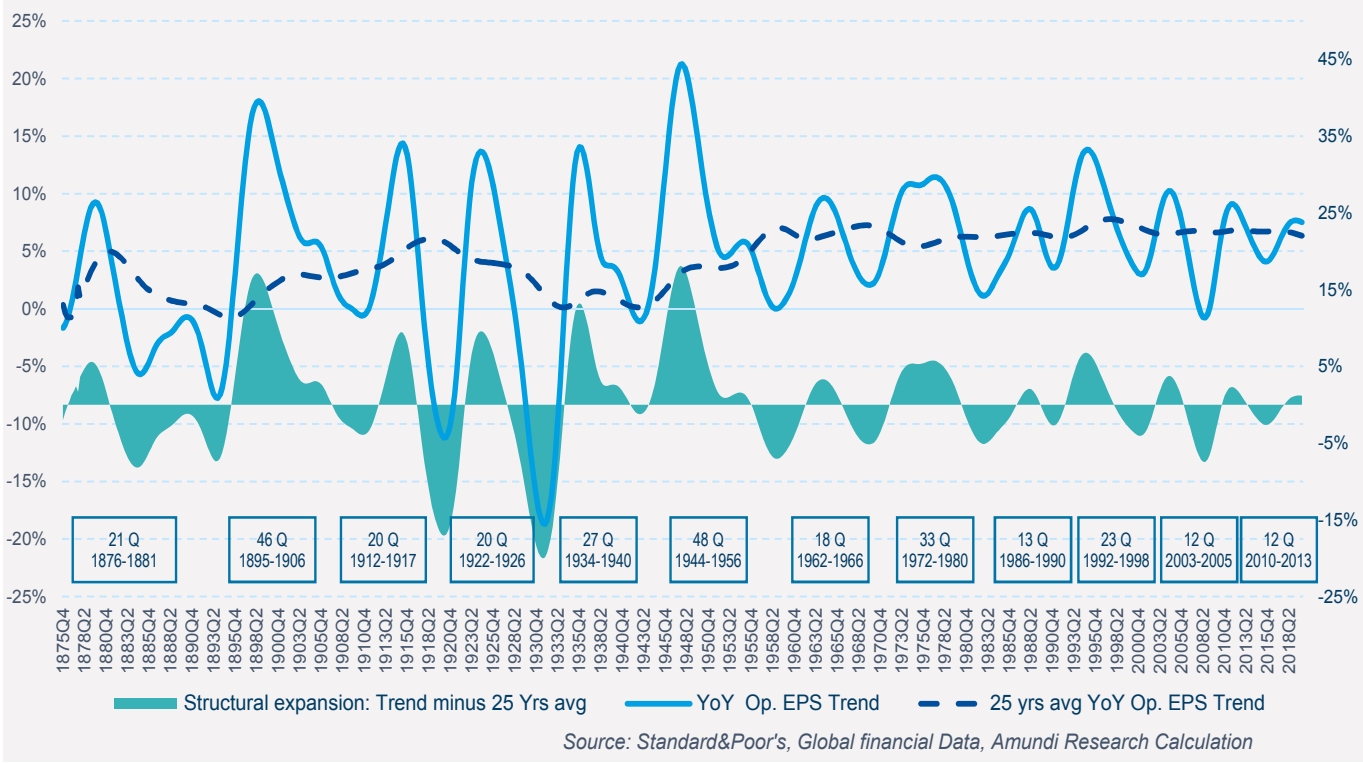
Main findings:

1. The median length of a complete eps cycle (up+down) is 10 quarters (5 years) which is exactly the official frequency estimated for the Kitchin cycle. We can reasonably conclude that this cycle has significant contribution in explaining cyclical EPS up-swings and down-swings.
2. The cycle after GFC has been quite long and it posted the second most persistent cycle.
3. So far the actual up cycle is entering in the middle up period providing some room for further expansion in 2018-19.

Historical perspective: Trend structural swings chronology

Structural swings are related to trend shift taking into account longer time horizons rolling windows in line with longer lasting rea economic cycles like Juglar and Kondratiev ones. For this reason we plot the historical yoy EPS trend growth and the 25 years trend avg to evaluate the structural fluctuations and structural shifts in profits generation.

3/ Trend history and swings chronology



Source: Standard&Poor's, Global financial Data, Amundi Research Calculation

Below some useful statistics

Trend		
	up	down
num. Cycle	11	11
avg quarters length	23	20
median quarters length	20	21
max length	48	27
avg swing	4.6%	-4.8%
median swing	3.2%	-3.3%
actual Quarters length	3	

Source: Standard&Poor's, Global financial Data, Amundi Research Calculation

Main findings

1. On average structural complete swings (up and down) last round 40 quarters (10 years).
2. We had 2 pronounced and long lasting shifts after the Second World War till 1960 and than in 70- 80-90 due to economic boom and due to innovation respectively. Also the change of labour market in US mattered lowering labour costs. As a consequence the 25 yrs trend reached a peak in the 1997 (+7.8%). This is consistent with the historical levels below.

YOY growth	avg 30 yrs	vol 30 yrs	70's	80's	90'	00'	10'
Sales	4.3%	6.2%	11.1%	5.9%	4.2%	2.6%	7.2%
ULC	1.7%	3.1%	6.1%	4.3%	1.8%	1.2%	1.1%
PPY	2.2%	3.8%	7.5%	3.9%	1.6%	2.7%	3.2%

Source: Bloomberg, Amundi Research Calculation

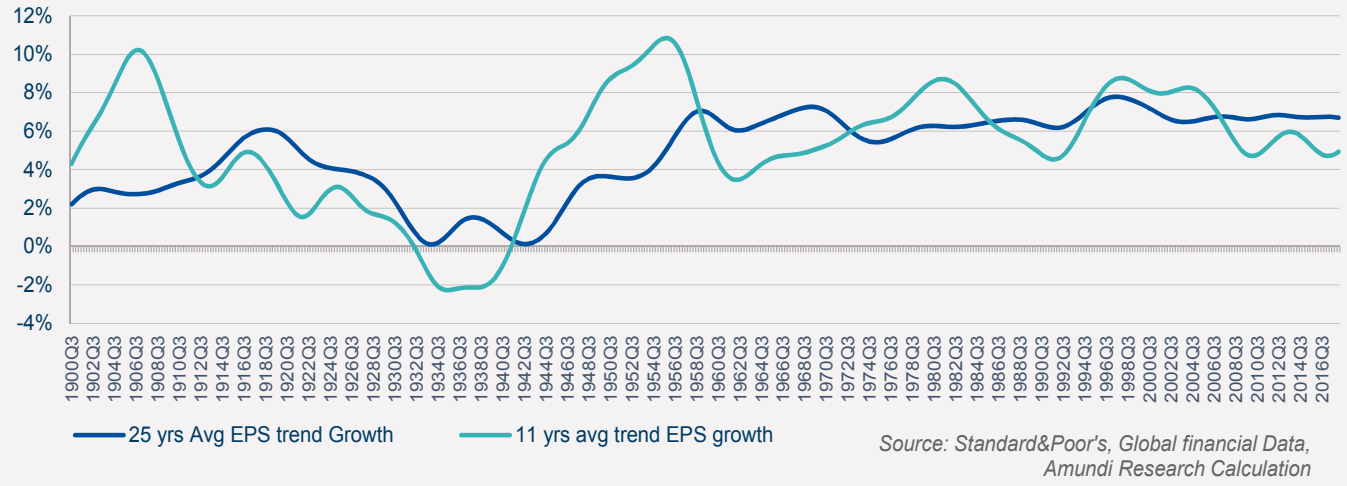
Productivity increase, hence very low ULC levels drove profits higher instead of revenues growth. This is the reason why margins are at historical highs.

3. The medium term shift driven by "internet revolution" look still healthy however the secular forces that drove the last 80 years are losing strength. The table below shows the historical averages yoy growth of EPS (Trend plus cycle). The expected yoy average growth for the next 8 quarters is +11.9% healthy but the all the other historical average are below than the all history one

	Actual	3 yrs	5 yrs	7 yrs	11 yrs	14 yrs	25 yrs	all history
As of mar-18	11.2%	5.3%	5.4%	6.3%	4.9%	5.8%	6.7%	7.3%

Source: Standard&Poor's, Global financial Data, Amundi Research Calculation

4/ EPS trend growth historical pattern

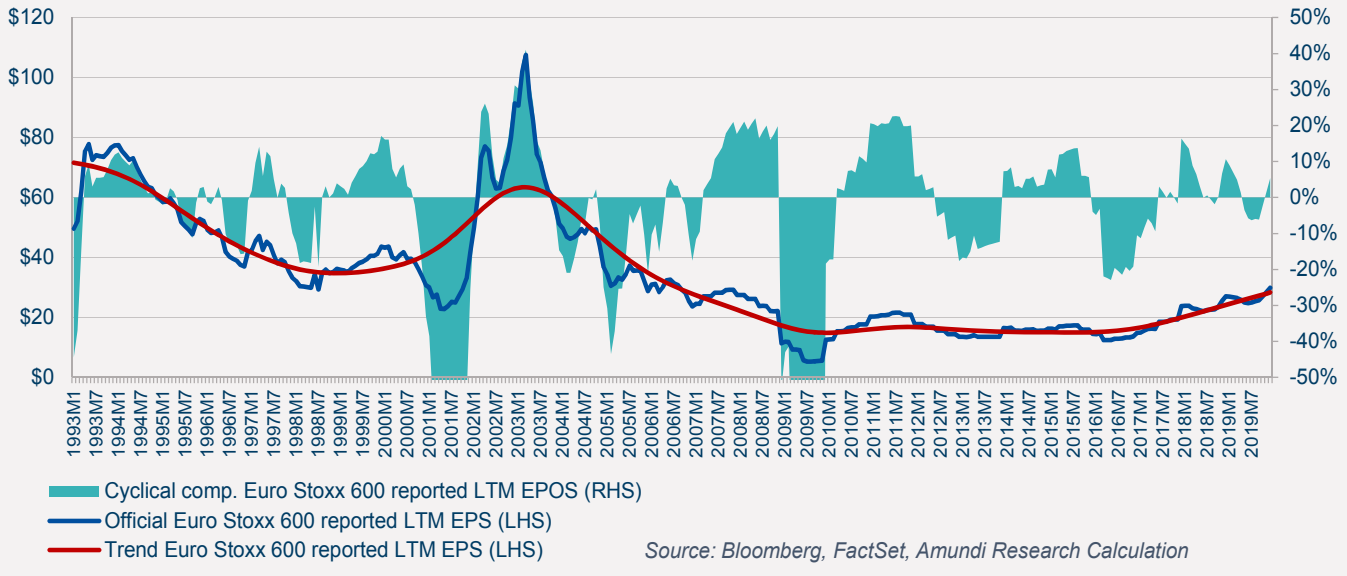


Source: Standard&Poor's, Global financial Data, Amundi Research Calculation

2. Europe EPS trend cycle analysis

Neither Stoxx nor MSCI provide official figures for operating EPS like S&P website hence the trend-cycle decomposition analysis for Europe has been done on the reported EPS (from 1993 to 2007 MSCI Europe and 2007-2018 Stoxx Europe).

5/ Reported Euro Stoxx 600 LTM EPS: Trend-Cycle decomposition



Source: Bloomberg, FactSet, Amundi Research Calculation

The charts suggests 2 things:

1. Cycle component is less regular
2. Trend has been stagnating in the latest 25 years with the exception of the period from 1998 to 2003 although some bottoming out is in place recently.

Cycle		
	Upturn	Downturn
num. Cycle	8	8
avg months length	17	16
median months length	20	17
max length	27	30
avg swing	11%	-26%
median swing	8%	-14%
actual Months length	9	

Source: Bloomberg, FactSet, Amundi Research Calculation

Main findings:

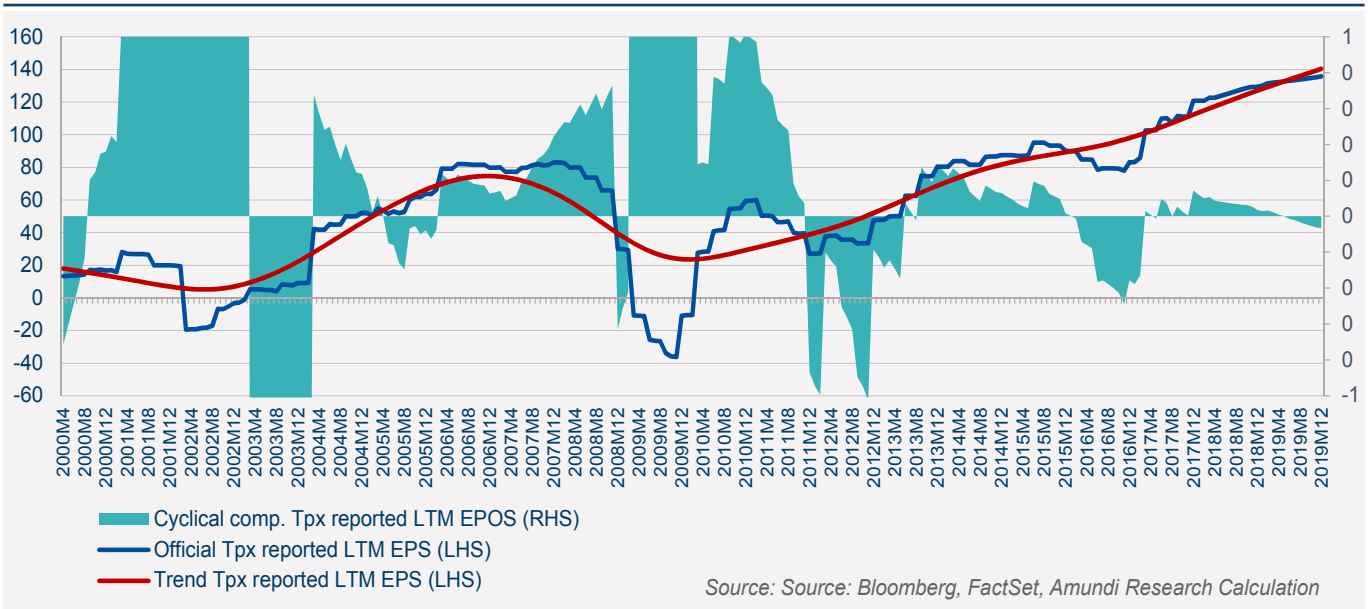
- Cycles lengths last half on US ones and they look micro-cycles
- The average swings are biased on the downturn and it looks more vulnerable to recession phases

Trend analysis is not possible to run due to lack of data however it seems structurally stagnating and Euro can be the reason of this structural movement.

3. Japan EPS trend cycle analysis

Neither Topix nor MSCI provide official figures for operating EPS like S&P website hence the trend-cycle decomposition analysis for Japan has been done on the reported EPS (2000 Topix).

6/ **Reported Topix LTM EPS: Trend-Cycle decomposition**



Source: Source: Bloomberg, FactSet, Amundi Research Calculation

The charts suggests 3 things:

1. Cycle component is less regular than US and even Europe.
2. Trend is robust since 2010 after companies restructuring happened 10 years ago.

EPS forecast: main drivers.

We applied BEA methodology (BEA, "Concepts and Methods of the U.S. National Income and Products Accounts", July 2008), namely GDI measure of GDP which is the sum of income payments and costs incurred in production.

To decompose EPS puzzle we than considered and squared top & bottom line taking into account 2 relevant dimensions: economic and financial conditions. In fact both revenues and costs are affected not only by real or pure economic considerations like real GDP, inflation or wages but also financial conditions like FX and credit spreads matter. The latter recently have been the drivers to fast and unexpected profits recessions like 2015.

Below the matrix we built for assessing all the relevant variables.

Top down EPS decomposing contributions	Top Line (based on internal forecast)	Bottom line (based on internal forecast)
Economic conditions	Nominal GDP, Industrial Production, Exports, World Trade, Leading Indicators	Unit Labor cost, wages, compensations, productivity, PPI
Financial conditions	Currencies	Credit spread, interest rates, commodities

2018: Decomposing US Operating EPS puzzle

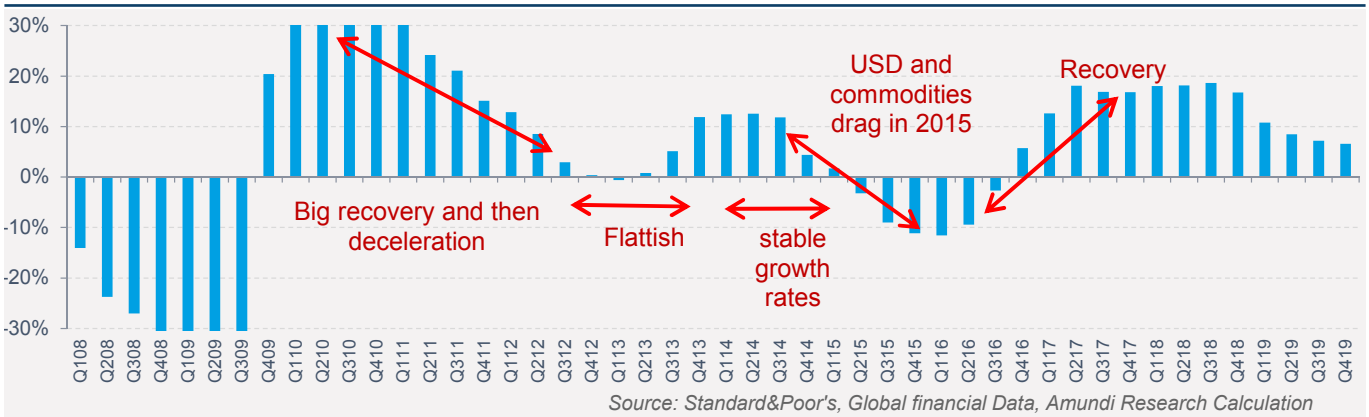
Profits equation is a mix of 2 components: the top line (revenues) and the bottom line (costs) both driven by economic and financial conditions

Top down EPS decomposing contributions	Top Line (based on internal forecast)	Bottom line (based on internal forecast)
Economic conditions ok	Nominal GDP internal forecast 5.4% 2018E: definitely supportive	ULC 1. 2% 2018E but PPI rebound to 2.5% 2018E
Financial conditions Stabilizing on currency and corporate spread	The $ broad index is expected to stabilizing round 120 – 5% from January low	Moody Spread is expected to widen round 0.9% 2018E (because of rates rising)

The overall picture is healthy in 2018 and 2019 due to:

1. Solid real GDP growth and pick in CPI let a healthy nominal GDP.
2. Relatively weak US dollar prevents disruption of revenues abroad.
3. ULC should remain at subdued levels and PPI should not spike that much
4. Credit spread should not widen significantly.

7/ **S&P 500 EPS Growth**



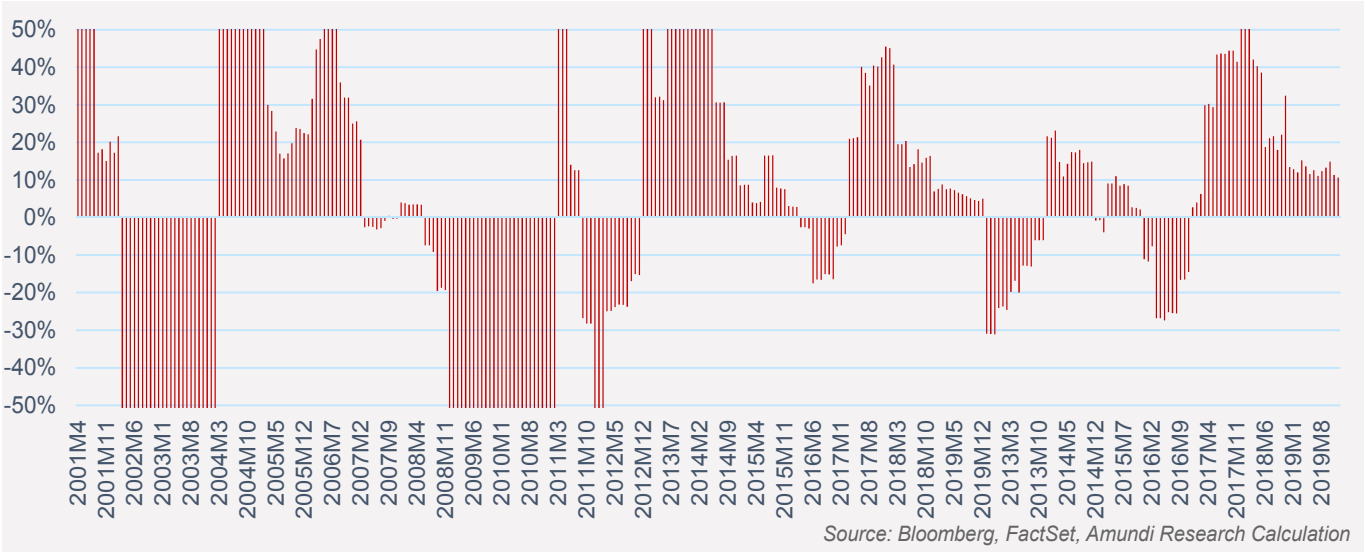
Source: Standard&Poor's, Global financial Data, Amundi Research Calculation

2018: Decomposing Japan EPS puzzle

Profits equation is a mix of 2 components: the top line (revenues) and the bottom line (costs) both driven by economic and financial conditions

Top down EPS decomposing contributions	Top Line (based on internal forecast)	Bottom line (based on internal forecast)
Economic conditions Benign	Industrial production is expected to decelerate a bit going forward while global economic growth remains solid	Wages and compensations will move higher in 2018
Financial conditions Jpy should remain an headwind	Yen appreciation will be an headwind even if it appears that profits are less vulnerable to exports this time	

8/ **Japan eps yoy growth**



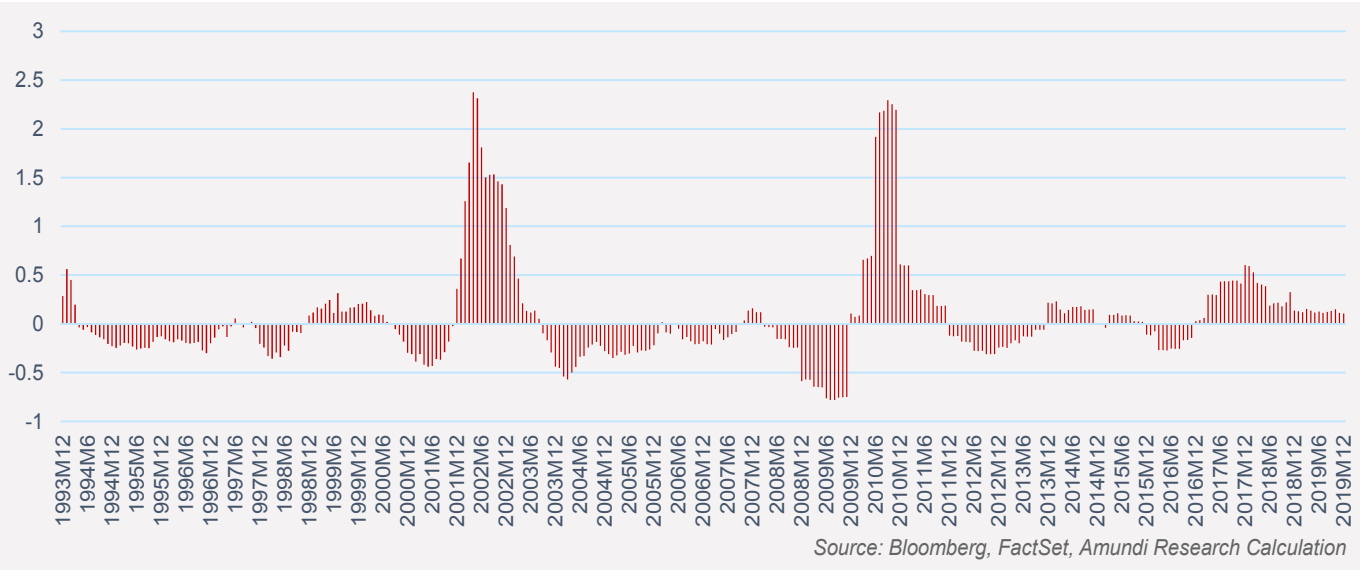
Source: Bloomberg, FactSet, Amundi Research Calculation

2018: Decomposing Eurozone EPS puzzle

Profits equation is a mix of 2 components: the top line (revenues) and the bottom line (costs) both driven by economic and financial conditions

Top down EPS decomposing contributions	Top Line (based on internal forecast)	Bottom line (based on internal forecast)
Economic conditions ok	Nominal GDP internal forecast 3.9% 2018E	ULC .8% 2018E PPI rebound to 2% 2018E
Financial conditions Stable	The trade weighted Eur is not supportive due to recent appreciation	Steepening of bund curve with spread 2yrs10yrs above 100 bps will help margins and banks profits

9/ **Europe eps yoy growth**



Source: Bloomberg, FactSet, Amundi Research Calculation

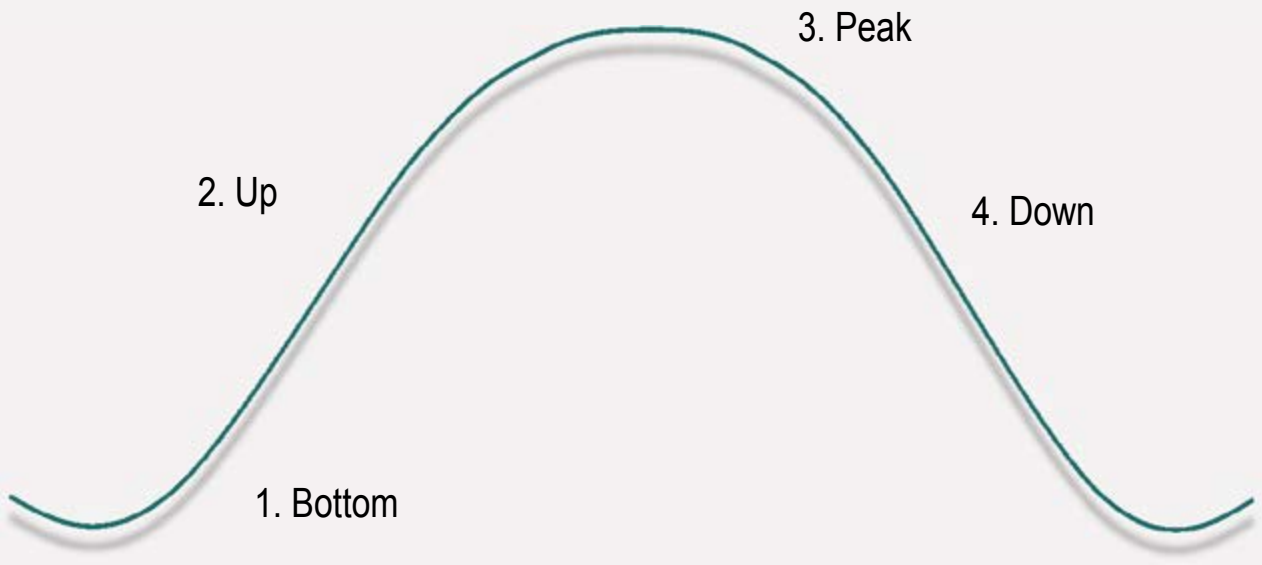
Beside EPS forecast: profitability metrics and fundamental cycle.

We analyse profitability metrics and their momentum to identify the point in time of the profit cycle and cross check our projections and then compare with trend and cycle decomposition.

We consider a basket of the following fundamental metrics: ROE, ROA, Profit Margins, Ebitda Margins and EPS 12 M consensus expectations. We consider percentiles distributions in order to adjust each region for its own profit cycle specificity.

We calculate and isolate 4 relevant phases of the profit cycle in order of the sequence: bottom out, up, peak and down.

10/ **Different phases of the profit cycle**



Source: Amundi Research calculation

Bottom out

Fundamental metrics are quite depressed and closed to their historical low percentiles. Momentum however is closed to revert and eps expectations start to re-rate.

Up

Fundamental metrics are positive but not stretched and Momentum is positive and eps revisions remain in positive territory.

Peak

Fundamental metrics become stretched and momentum and eps revisions stall.

Down

Fundamental metrics deteriorate and momentum and eps revisions shift to negative.

We estimate the references percentile and momentum figures for each phase in order to be able to assess the probability or confidence to belong in each of the 4 phase every month and track the chronology of the cycle.

Percentiles	roe	roa	pm+em	mom roe	mom roe	mom pm+em	eps revision
Bottom	15.4%	14.2%	21.4%	4.6%	4.9%	4.6%	6.7%
Up	51.7%	57.7%	70.4%	0.2%	0.3%	1.0%	-0.3%
Peak	93.2%	78.3%	97.0%	2.4%	2.6%	1.0%	-0.1%
Down	35.0%	29.1%	72.5%	-19.5%	-15.0%	-11.8%	-2.0%

Eps revisions are taken in difference in order to consider the absolute revisions

United States

31/03/2018	roe	roa	Profit margins	EBITDA margins	ROE momentum	ROA momentum	Margins momentum	EPS 12M FWD Revisions
31/03/2018	13.6	2.9	9.1	19.1				3.1%
percentiles	42	56	90	50	1	2	-1	
28/02/2018	13.6	2.9	9.1	19.2				4.4%
percentiles	42	55	90	50	1	2	-1	
31/03/2017	13.5	2.8	9.1	19.0				-0.5%
percentiles	40	53	93	50	4	6	7	

Source: Bloomberg, FactSet, Amundi Research Calculation

Europe

31/03/2018	roe	roa	Profit margins	EBITDA margins	ROE momentum	ROA momentum	Margins momentum	EPS 12M FWD Revisions
31/03/2018	12.7	1.6	8.4	16.2				0.1%
percentiles	68	84	83	46	5	6	4	
28/02/2018	12.7	1.6	8.4	16.3				0.0%
percentiles	67	84	82	47	7	10	6	
31/03/2017	8.2	0.9	5.6	15.0				-0.1%
percentiles	35	41	46	31	4	5	7	

Source: Bloomberg, FactSet, Amundi Research Calculation

Japan

31/03/2018	roe	roa	Profit margins	EBITDA margins	ROE momentum	ROA momentum	Margins momentum	EPS 12M FWD Revisions
31/03/2018	9.3	1.5	5.9	12.6				0.1%
percentiles	94	94	98	74	3	4	0	
28/02/2018	9.2	1.5	5.9	12.6				0.0%
percentiles	93	92	99	74	3	4	1	
31/03/2017	8.1	1.3	5.0	12.5				-0.1%
percentiles	66	64	100	74	11	8	10	

Source: Bloomberg, FactSet, Amundi Research Calculation

Probability assessment

Profits Cycle phases probabilities					
Date	Region	Bottom out	Up Cycle	Peak	Down Cycle
31/03/2018	US	16%	46%	17%	21%
31/03/2018	Europe	12%	42%	30%	15%
31/03/2018	Japan	8%	21%	61%	10%
28/02/2018	US	18%	42%	19%	22%
28/02/2018	Europe	13%	41%	30%	16%
28/02/2018	Japan	8%	21%	61%	10%
31/03/2017	US	13%	53%	15%	19%
31/03/2017	Europe	25%	34%	14%	27%
31/03/2017	Japan	11%	43%	32%	14%

Source: Bloomberg, FactSet, Amundi Research Calculation

Looking at the percentiles and probabilities of the profits cycle phases it looks Japan is the closest to the peak, while US and Europe are still in the up phase. Those results confirmed our internal forecasts.

NOTES

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