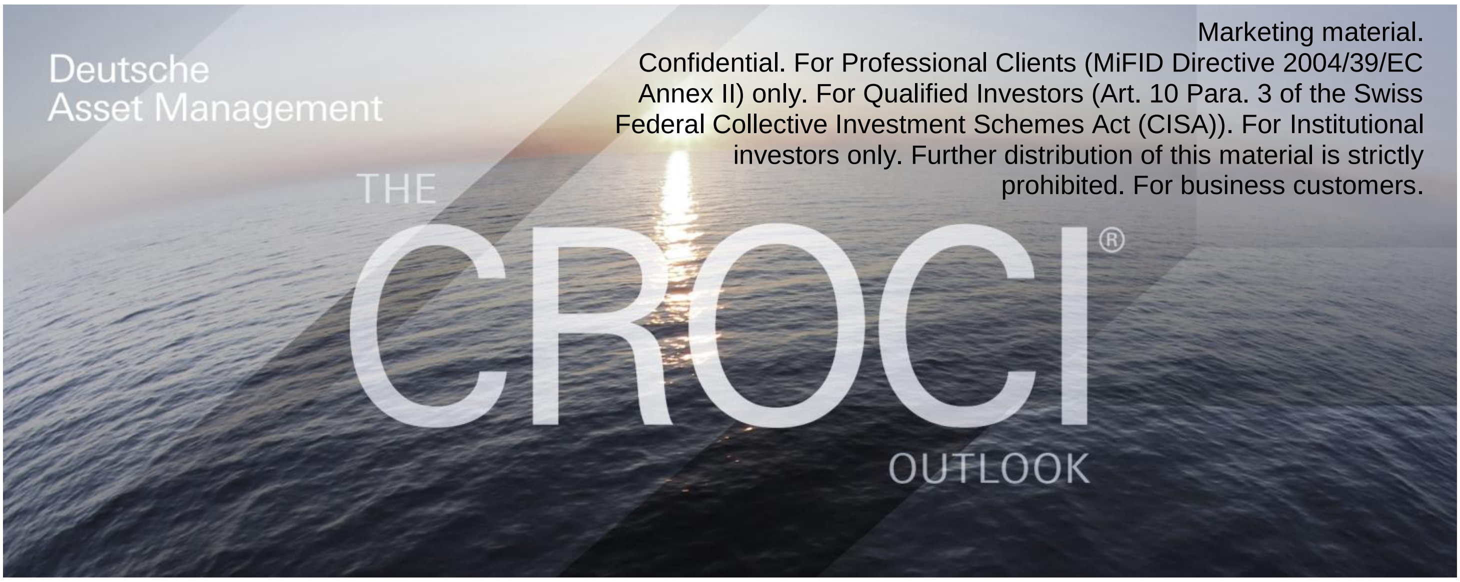

CROCI Outlook 2017: A Happy Odyssey

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As we finish 2016, markets appear optimistic about the global economy, but our fundamental analysis suggests that the journey to a better world is more akin to an adventure story than to the science-fiction world of teleportation.

Equities start the year already expensive, whilst revenues are flagging. If de-globalisation is the final destination, the risk is that the factors that have helped equities over the past few decades will go into reverse. A further risk is that we all may be barking up the wrong tree. Is globalisation the cause of all our problems? Perhaps, but our analysis also suggests that the inability of new technologies to create jobs has contributed to both (a) a sharp decline in business's requirements for medium-skill labour (b) the increased polarisation of the labour economy. Both have much to do with a stagnating economy. In the end, reversing globalisation may simply increase the costs for the economy, further dampen productivity and create a situation where low growth is associated with inflation.

Maybe we are just being too cautious. Still, the message of our outlook is that whilst globalisation and quantitative easing may no longer be the answer, the journey to the new destination will be perilous and take time. How might the market react to an economy characterised by low growth and higher inflation? Will the bond market be sanguine? Maybe not. In 1987, the market rallied as bond yields rose, but then sharply corrected. Neither should investors, this time around, exclude the possibility of a 20% correction in the medium term, driven by a repricing of risks.

Still, Odysseus eventually made it home to Ithaca. Equally, democratic processes driven by elections have been driving the desire for change. There will be adjustments, but listed companies are in a healthy state and even the European Banking sector is arguably in a better state than it has been for a very long time.

Whether to focus on the journey or the destination is a conundrum that will determine which approach investors should take in 2017. Unlike Odysseus, however, we do not have the prophetic guidance of the sorceress Circe. All we know is that a value-based approach based on rigorous due diligence forms a good basis for long-term investment. Defensive Value is at a discount following the rotation of the past quarter and is a solid methodology for more sceptical investors. On the other hand, Aggressive Value focuses on cheap assets that are struggling with the current economic environment. It may be a riskier approach, but could suit investors determined to focus on the destination. We find value in Japan and the US. Emerging Markets have done the best out of globalization; the challenge now is to determine what impact reversing it will have.

Important Information

This paper is intended for Professional Investors only, who understand the strategies and views introduced in this paper and can form an independent view of them. CROCI represents one of many possible ways to analyse and value stocks. Potential investors must form their own view of the CROCI methodology and evaluate whether CROCI and investments associated with CROCI are appropriate for them.

Please see Glossary A for a brief introduction to CROCI and for definitions of key terms used throughout this piece. Please see Glossary B for the definition of Real Value.

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Past performance is not an indicator of future performance and any forecast or projection may not be realised. Any current or past company metrics may not be indicative of future metrics. Any investment in equities can go down as well as up and investor capital may be at risk up to a total loss.

In the data and charts presented throughout this document, "E" refers to financial years that are not yet reported. Forecasts of accounting data for these years are based on market's consensus estimates as reported by Bloomberg Finance L.P. CROCI metrics for the forecast years are calculated by applying the CROCI model to these consensus estimates. The CROCI team does not make any forecasts or projections of accounting data. Data for historical years are derived from company reports and other publicly available sources.

Please refer to the important information at the end of this document.

16th December 2016

Relevant CROCI publications

April 2011	CROCI Focus	The danger to equities from inflation
June 2011	CROCI Focus	Is the 30 year trend of rising profitability about to end?
July 2012	CROCI Focus	The implications of collapsing profitability in Emerging Markets
January 2013	CROCI Outlook	The increasing importance of growth
May 2013	CROCI Focus	The appeal of equities and dividends if bond yields rise
January 2014	CROCI Outlook	An economic momentum year
January 2015	CROCI Outlook	Great expectations
May 2015	CROCI Focus	The performance of economic value
January 2016	CROCI Outlook	This time it's different, or is it?
September 2016	CROCI Outlook	The great escape?

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Summary View

Star Trek or Odyssey?

Even if predicting the outcome of a national election or a referendum has become virtually impossible, there is unison over the cause of these wild political outcomes: popular disenchantment with increasing globalisation.

The US presidential election has certainly provided investors with a 'beam me up Scotty' situation. We have seemingly been teleported into a perceived future made-up of protectionism, strong US economic growth and a strong dollar—and with no concerns of disinflation. Outside of the US, most will likely be losers from this scenario, especially Emerging Markets (although higher energy prices may end up benefiting a few nations), but equity markets appear to assume that they will all somehow be fine.

The world is likely to look somewhat different after Trump's (first) term, if many of his policies are implemented. Even so, teleportation technology is unlikely to have been developed. In reality, a closer parallel might be Odysseus journey back home to Ithaca from Troy. Just like for Odysseus, the journey will be lengthy (it took him 10 years to find his way back home), costly (he lost his entire crew) and perilous (after being cursed by the sea god Poseidon).

The starting point is an expensive asset class. Equity investors should not expect more than 5% in the long term, including dividends.

For the second year in a row close to 50% of listed companies have recorded negative revenue growth and the current bottom-up 2017 forecasts are for lower investments. We also know that the capital deployed over the past few years has not been productive, with only IT and Health Care seeing material real earnings growth since 2007[1].

One of the primary contributors to the low economic growth in recent years has been the inability to replace jobs disrupted by new technology with new ones. Less than 1% of the jobs created since 2000 can be attributed to new technology. Research suggests that new technology has been very effective at replacing people with medium skills. This has contributed to a higher level of polarisation in the economy with demand for jobs restricted to low skills and high skills, to the detriment of the middle class. Close to 50% of current jobs are forecast to disappear in the next twenty years.

Still, the hot topic amongst policymakers at the moment is deglobalisation, and how this may be able to create new jobs. We are keen to see the details when they are known, given that our analysis suggests that increasing globalisation and the US's productivity gains went hand in hand. Reversing the process [2] may therefore have implications both for the economy (lower productivity) and for profitability[3]. An increase in the costs of low-skills jobs and the associated lower productivity may well result in higher inflation, low growth and possibly lower margins.

Investors currently appear to be pricing that higher US growth will be positive for Emerging Markets. The latter have been the primary beneficiary of globalisation, though. Thus one needs to question the long-term benefits of reversing the process, especially when much of the EM growth of the past decade has been driven by investments that have diluted profitability, and financed by debt[4].

As for Europe, 2017 will be an important election year in three (maybe four) of the original founder states of EU. Will European politics become centripetal (stronger unification) or centrifugal (everyone for themselves)?

The stage for an epic journey is set, but there are also significant headwinds, which will take time and attention to tackle. Meanwhile, investors will need to decide whether to position themselves for the final destination or for the journey. Those focusing on the journey will require much prudence and attention to risks. Conversely, others may instead wish to focus on the destination, dismissing everything else as noise. We discuss possible investment strategies for both in Section 3. Depending on their preferences, either an Aggressive or Defensive approach may end up suiting individual investors. Globally, Defensive Value has a median FCF yield of 7.3%, thanks to low debt and high free cash flow. On the other hand, Aggressive Value is not high quality, having low FCF generation, but assets are cheap and it is best positioned for the reflationary story.

Whatever your preference, companies have their balance sheets in good order [5] and even the European banking sector is in a better state than it has been for a long time, a genuine positive. It may have been a long, costly and perilous journey, but Odysseus eventually made it to Ithaca.

Bon Voyage!

London, December 2016

[1] CROCI Outlooks 2014, 2015, 2016 passim

[2] CROCI Focus, *Is the 30 year trend of rising profitability about to end,* June 2011

[3] See CROCI Drivers chart for US Equities, page 49.

[4] CROCI Focus, *The Implications of Collapsing Profitability in EM*, July 2012

[5] See page 4 for details

Figure 1: Global Equities P&L and Valuation

	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Economic P / E (x)	19.3	20.9	18.4	17.7	19.5	21.5	23.9	27.5	27.3	25.9	23.5
Accounting P / E (x)	15.4	15.4	13.1	12.8	13.6	15.3	17.0	19.2	19.2	17.4	15.9
Yield (%)	2.6	3.0	2.8	3.0	3.0	2.8	2.7	2.6	2.5	2.5	2.7
P / BV (x)	2.5	1.9	2.0	2.1	2.0	2.2	2.6	2.7	2.6	2.4	2.2
EV / Sales (%)	123.7	121.5	121.1	114.8	117.2	129.8	143.6	164.1	168.5	166.2	156.1
EV / Adj. EBDIT (x)	7.7	7.4	7.0	6.9	7.3	8.0	8.8	9.8	9.8	9.2	8.4
EV / Free Cash Flow (x)	30.0	17.6	19.0	23.3	28.5	28.1	28.1	29.9	25.0	22.0	19.1
EV / Capital Employed (x)	1.6	1.3	1.4	1.4	1.4	1.5	1.7	1.7	1.7	1.7	1.6
Avg. Market Cap. (bn)	19,040	15,859	18,883	20,582	21,173	24,211	26,965	27,466	27,522	27,672	27,654
Enterprise Value (bn)	23,150	20,076	22,926	24,935	25,847	28,779	31,603	32,243	32,744	32,608	31,841
Key Ratios	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Revenue Growth	10.9	-11.7	14.5	14.8	1.5	0.5	-0.7	-10.7	-1.1	1.0	4.0
Revenue Growth (Median)	6.6	-4.3	9.6	7.5	4.3	3.2	3.2	1.3	0.5	3.4	3.6
Adj. Net Profit Pre-Min. Growth	-8.2	-16.2	40.3	11.4	-3.5	1.7	-1.0	-10.5	0.8	10.4	9.8
Adj. EBDIT Mgn	16.1	16.4	17.4	16.6	16.1	16.3	16.3	16.8	17.2	18.1	18.6
Adj. EBIT Mgn	11.2	10.7	12.2	11.8	11.3	11.3	11.1	11.0	11.2	12.2	12.7
Adj. Net Prof. Pre-Min. Mgn	7.0	6.6	8.1	7.8	7.5	7.6	7.5	7.6	7.7	8.4	8.9
Depreciation / Sales	5.5	6.0	5.5	5.1	5.3	5.4	5.7	6.8	6.2	6.0	5.9
Capex / Sales	7.9	7.7	7.3	7.6	8.0	8.0	8.0	8.4	7.9	7.4	7.1
Free Cash-Flow / Sales (Post-Tax)	4.1	6.9	6.4	4.9	4.1	4.6	5.1	5.5	6.7	7.6	8.2
Dividends / Sales	3.6	2.9	2.7	3.0	3.2	3.1	3.4	4.1	3.9	3.5	3.6
Interest Cover (x)	10.5	8.1	10.9	11.8	11.3	11.2	11.1	10.2	9.3	10.5	12.0
Net Debt (-) Cash (+) / Equity	-47.7	-39.5	-33.8	-36.8	-36.7	-36.2	-39.5	-43.5	-42.9	-34.4	-25.4
Return on Stated Equity	13.1	11.8	14.9	15.0	13.5	13.2	13.4	11.9	12.4	13.3	13.6
Return on Cap. Employed (Post-Tax)	10.2	8.5	10.5	10.7	9.8	9.5	9.3	8.5	8.4	8.9	9.5
P&L (USD bn)	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Turnover	18,720	16,525	18,924	21,725	22,060	22,164	22,010	19,647	19,432	19,622	20,398
Adjusted EBDIT	3,018	2,708	3,286	3,606	3,551	3,602	3,581	3,293	3,347	3,555	3,794
Depreciation	1,022	992	1,032	1,111	1,170	1,190	1,260	1,341	1,209	1,169	1,204
Adjusted EBIT	2,100	1,767	2,309	2,560	2,482	2,494	2,442	2,170	2,186	2,389	2,590
Pre-Tax Profit	1,537	1,376	1,916	2,099	1,926	1,975	1,929	1,515	1,748	2,053	2,281
Income Tax	599	448	603	696	687	668	640	532	526	595	657
Stated Net Profit Pre-Min.	964	1,143	1,492	1,547	1,416	1,648	1,470	1,172	1,345	1,557	1,728
Adj. Net Profit Pre-Min.	1,301	1,091	1,530	1,705	1,646	1,675	1,658	1,484	1,496	1,652	1,813
Minorities	51	48	65	69	65	65	52	45	49	53	58
Cash Flow (USD bn)	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
EBIT before stock options	2,038	1,758	2,301	2,548	2,425	2,468	2,386	2,009	2,199	2,471	2,680
Depreciation	1,022	992	1,032	1,111	1,170	1,190	1,260	1,341	1,209	1,169	1,204
NWC and Provisions	-144	188	-64	-170	-161	-121	-42	-1	42	-26	-23
Operating Cash Flow	2,916	2,939	3,269	3,488	3,433	3,537	3,603	3,349	3,450	3,615	3,861
Proceeds from Share Issues	-143	98	-33	-248	-184	-371	-241	-186	-53	-1	1
Dividends Paid	-677	-477	-513	-649	-703	-684	-758	-812	-754	-693	-725
Capex	-1,479	-1,275	-1,385	-1,650	-1,764	-1,768	-1,760	-1,659	-1,527	-1,452	-1,456
Net Other Investments	-493	-327	-337	-372	-171	-65	-355	-478	-571	-1	0
Change in Net Debt (-) Cash (+)	-600	257	143	-354	-170	-143	-157	-381	-77	666	830
Balance Sheet (USD bn)	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Net Working Capital	618	478	527	664	708	703	600	474	425	443	454
Net Financial Debt (-) Cash (+)	-3,794	-3,546	-3,419	-3,874	-4,049	-4,197	-4,354	-4,733	-4,844	-4,178	-3,342
Gross Tangible Fixed Assets	15,335	16,754	18,086	19,081	19,792	20,632	20,082	20,145	20,505	21,231	21,946
Net Tangible Fixed Assets	7,463	8,033	8,604	9,176	9,676	10,115	9,876	9,750	9,946	10,224	10,467
Other LT Assets	1,054	1,063	1,143	1,209	1,252	1,361	1,376	1,437	1,418	1,430	1,443
Stated Shareholder's Equity	7,551	8,523	9,620	9,971	10,447	11,004	10,489	10,323	10,705	11,563	12,561
Minorities	406	456	506	553	583	597	527	559	575	582	590

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of companies in CROCI's global coverage. Data in USD as on 19 December 2016.

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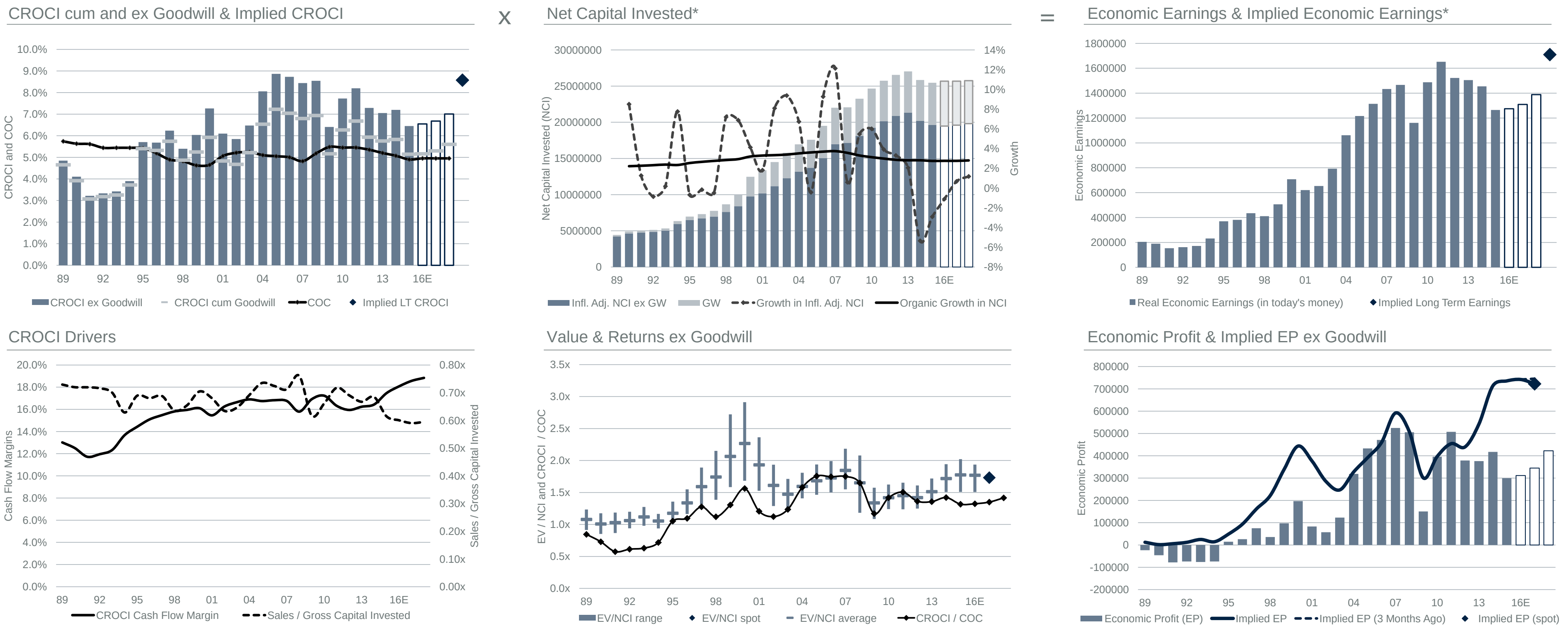
Figure 2: Global Equities CROCI



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Enterprise Value (USD bn)	10770	14222	17063	15426	14424	14661	17201	19095	21834	26782	24837	21737	24663	26800	27763	30747	33660	34366	34461	34544	33834
Market Cap (USD bn)	8956	12167	14411	12426	10836	11047	13534	15369	17874	22168	19040	15859	18883	20582	21173	24211	26965	27466	27250	27672	27654
EV/NCI Ex. GW	1.74x	2.06x	2.27x	1.93x	1.61x	1.47x	1.60x	1.68x	1.73x	1.85x	1.65x	1.34x	1.42x	1.45x	1.42x	1.51x	1.72x	1.78x	1.77x	1.73x	1.65x
Economic PE	32.3x	34.2x	31.2x	31.7x	27.6x	22.8x	19.8x	19.0x	19.8x	21.9x	19.3x	20.9x	18.4x	17.7x	19.5x	21.5x	23.9x	27.5x	27.0x	25.9x	23.5x
Accounting PE	26.9x	30.6x	26.7x	27.6x	21.3x	16.6x	15.2x	15.1x	15.4x	16.6x	15.4x	15.4x	13.1x	12.8x	13.6x	15.3x	17.0x	19.2x	19.0x	17.4x	15.9x
Cost of Capital	4.82%	4.63%	4.65%	5.06%	5.21%	5.24%	5.10%	5.05%	5.00%	4.82%	5.18%	5.48%	5.45%	5.45%	5.35%	5.20%	5.07%	4.90%	4.95%	4.95%	4.95%
CROCI Ex. GW	5.4%	6.0%	7.3%	6.1%	5.8%	6.5%	8.1%	8.9%	8.7%	8.4%	8.5%	6.4%	7.7%	8.2%	7.3%	7.1%	7.2%	6.4%	6.5%	6.7%	7.0%
Implied CROCI	8.4%	9.5%	10.5%	9.8%	8.4%	7.7%	8.1%	8.5%	8.6%	8.9%	8.6%	7.3%	7.7%	7.9%	7.6%	7.9%	8.7%	8.7%	8.8%	8.6%	8.2%
Implied Economic Earnings/ Economic Earnings	156%	158%	145%	160%	144%	119%	101%	96%	99%	105%	100%	114%	100%	96%	104%	112%	121%	135%	134%	128%	116%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of companies in CROCI's global coverage. Data in USD as on 19 December 2016.

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Section 1

A Bottom-up View of the Global Economy

Thirty years of increasing globalisation may have run their course, given the stagnation in both sales and investments. Reversing it may appear to make sense, but in reality it may simply result in rebalancing of national deficits as well as a temporary feeling of empowerment in national populations.

Our analysis suggests that reversing the trend may not be easy and its ultimate effects far from clear.

What our analysis also suggests is that the pace of low global economic growth is related to the nature of technological development. Jobs resulting from new technology have only been responsible for 0.5% of total jobs created since 2000. This compares to 8% of the jobs created by new industries in the 1980s, and 4.5% of jobs created by new industries in the 1990s.

Technology is also polarising the labour market and generating high-skill and low-skills jobs at the expense of medium-skilled ones. This is a clear problem for the middle class, generally such an important factor for the economy. Government policies of reducing corporate tax rates are creating further problems, as they favour companies with little labour and more capital, thus incentivising the adoption of the new ‘workless model’.

This line of analysis suggests that reversing globalisation could end up increasing the cost of low-skill tasks, which would likely result in poorer productivity and set off a low-growth higher-inflationary spiral.

Consumption in EM will need to increase at a much faster rate than currently; otherwise, capital will need to be destroyed.

The significant level of investment in China would be even less productive than it is today. Given the high level of corporate debt, this may raise further concerns about the soundness of the Chinese financial system.

The tail risk is a repeat of 1987, where inflationary pressure runs ahead of bond yield rises. This in turn could result in a negative effect on consumption and, ultimately, a sharp equity market adjustment.

1.1 Economic stagnation requires change in economic policy

The primary conclusion of our bottom-up analysis is that, over the past few years, economic policies have become increasingly ineffective at generating sustainable economic growth.

The median number for revenue growth is below inflation for global listed equities and the optimistic forecasts for 2017E could prove wrong again, just as they did in 2015 and 2016. A whopping 46% of listed companies[6] had negative revenue growth in 2016, with peaks in Japan where close to 80% recorded negative revenues. This is simply unprecedented in recent times. It used to be the case that competitive devaluation would benefit a particular country or currency bloc, but no one has benefited from the recent substantial currency moves.

At the sector level, the only sector that has escaped the negative revenue trend is Healthcare, but this may have a lot to do with significant M&A activity which has led to increasing consolidation, rather than the sector's innate ability to deliver sustainable growth.

As for earnings, there are only three sectors that have seen meaningful increases since 2007 (the peak in the global economy before the credit crisis)—IT, Healthcare and Consumer Discretionary.

Why policies are becoming ineffective

There are several reasons why the world economy could be in such a situation, even putting aside talk about Keynesianism, monetarism and the muddying of the distinctions between the two. What is clear is that some of the tenets that have driven economic growth since the late 1970s are no longer working.

Figure 3: Median revenue growth

	2014	2015	2016E	2017E
US	4.8%	-0.4%	1.8%	3.5%
Europe	0.3%	3.5%	1.4%	3.3%
Japan	5.2%	1.5%	-4.6%	2.4%
EM	3.6%	1.1%	0.1%	4.2%
Global	**3.1%**	**1.3%**	**0.7%**	**3.4%**

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. Data as on 14 November 2016.

Figure 4: Proportion of companies with negative revenue growth

	2014	2015	2016E	2017E
US	27%	51%	41%	15%
Europe	46%	35%	41%	14%
Japan	17%	47%	79%	14%
EM	36%	46%	47%	11%
Global	33%	45%	46%	14%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. Data as on 14 November 2016.

Figure 5: Proportion of companies with negative revenue growth by sectors

	2014	2015	2016E	2017E
C. Discretionary	25%	29%	39%	11%
C. Staples	41%	46%	41%	5%
Energy	62%	92%	88%	6%
Health Care	19%	19%	15%	9%
Industrials	30%	44%	49%	17%
IT	29%	43%	38%	19%
Materials	46%	63%	60%	12%
Telecom	37%	44%	41%	27%
Utilities	29%	60%	62%	24%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. Data as on 14 November 2016.

Figure 6: Economic Earnings growth by sectors

	Δ in CROCI (07-16E)	Growth (07-16E)	
		NCI	Ec. Earnings
C. Discretionary	0.6%	13%	24%
C. Staples	0.4%	2%	6%
Energy	-8.2%	29%	-94%
Health Care	1.0%	26%	35%
Industrials	-1.2%	21%	5%
IT	2.3%	37%	60%
Materials	-5.4%	5%	-57%
Telecom	-1.7%	14%	-21%
Utilities	-0.5%	8%	-6%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table uses aggregated data of companies in CROCI's global coverage. Data as on 14 November 2016.

[6] Based on the CROCI universe of global large-cap ex-financial companies

1.2 Another year of declining investments ahead

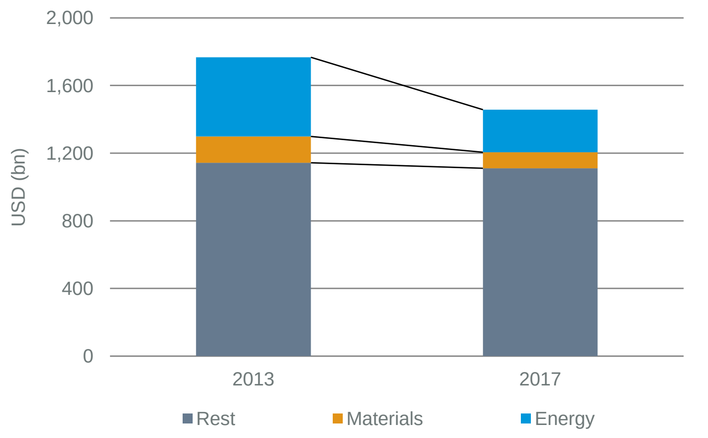
Capital has been deployed above replacement levels[7] in recent years, but corporates are likely to remain cautious with their expansionary capex plans. The bottom-up estimate is for capex to come down by 4.8% in 2017, in USD terms. This is primarily because of Japan (-7.7% in local currency) but there are similar trends in Europe (-4.5%) and the US (-2.3%).

Nominal capex has declined by 17.5% since 2013. This is primarily thanks to the fall in commodity prices. Energy and Materials explain 88% of the fall in capex since 2013. We do not expect a pick-up in capex for Energy and Materials without a sustained rise in oil price. Looking at the dynamics of oil price and capex, there was a 12 month lag between 2002 and 2004 before energy companies really started to raise their capex meaningfully. However, no single sector or region is currently in a position to make the running to drive investment growth.

In the following section, we examine how the new economy requires new capital formation, but a substantially lower level of labour than global industry has required historically.

"Globalisation" has, in reality, largely been about manufacturing goods in China and selling them elsewhere. The big winners have therefore been investment in China and consumption in Japan, Europe and the US.

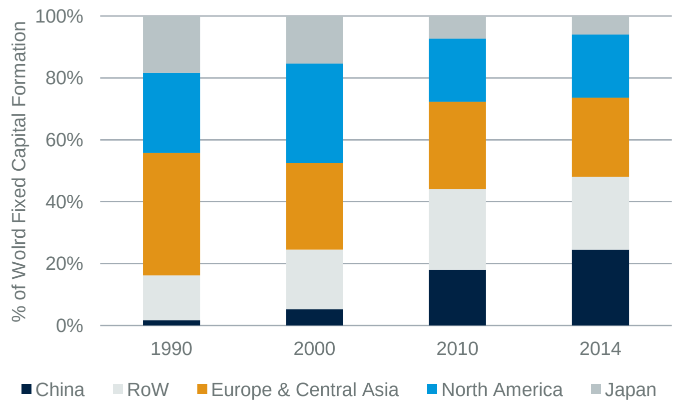
Figure 7: Energy & Materials have generated a fall in capex



Source: Deutsche Bank, CROCI, company reports. Agglomerated data of CROCI's coverage. Data as available on 24 November 2016.

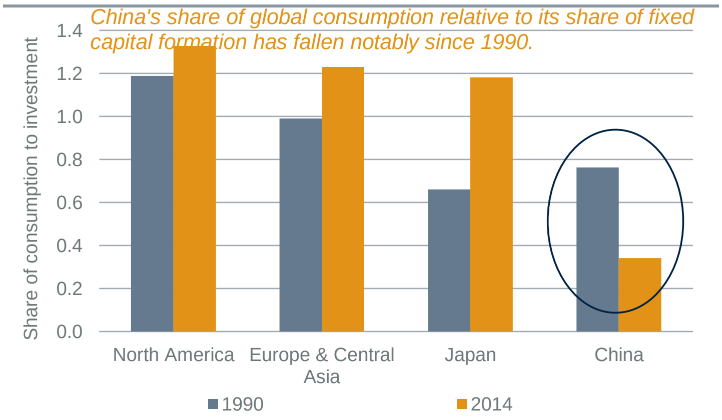
[7] See p10, CROCI 2016 Outlook. Replacement capex is defined as inflation-adjusted depreciation. Capex has been greater than replacement capex every year since 2009.

Figure 8: Regional share of Global Fixed capital formation



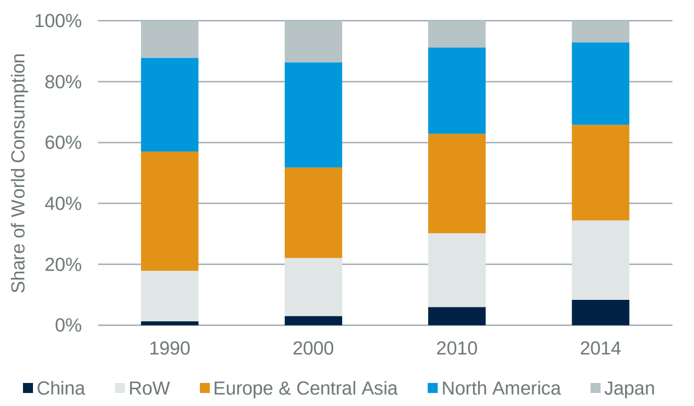
Source: The World Bank, Deutsche Bank and CROCI. Data as available on 24 November 2016.

Figure 9: Regional share of global consumption relative to their share of fixed capital formation



Source: The World Bank, Deutsche Bank and CROCI. Data as available on 24 November 2016.

Figure 10: Regional share of global consumption



Source: The World Bank, Deutsche Bank and CROCI. Data as available on 24 November 2016.

1.3 The new economy may be the cause of economic stagnation

The underlying stagnation in revenues and capex needs to be put in the context of the deep changes that have occurred both to our way of living and to the global economy as a result of technological innovation over past decades.

Is productivity higher than official data suggest? Doubtful, we think. Hal Varian (Chief Economist at Google and Emeritus Professor at the University of California) argues that our measurement of economic growth systematically underestimates the benefits that technological development brings to the real economy. He contends that productivity has vastly improved over the past century in the non-market economy, but that the traditional way of measuring economic output-to-economic input misses this.

This argument was the focus of a Fed paper (Byrne et al, March 2016) '*Does the United States have a Productivity Slowdown or a Measurement Problem?*' The authors conclude that (1) the bulk of IT benefits was in the 1995-2004 period, before the IT revolution driven by the growing prominence of the Internet and (2) consumer welfare may be rising but, even so, economic output may not increase.

The disruptive nature of technological development may benefit few at the expense of many. Our analysis reaches conclusions similar to the Fed's. If there are benefits associated with the Internet, they have not been captured in higher economic output. Our main concern with Varian's position is its lack of balance on the disruptive nature of the economic activity that results from current technological innovation.

In *The Economic Value of Google*, Varian eloquently propounds the economic benefits associated with Google. Our analysis suggests that, in aggregate, the Internet primarily benefit providers of risk capital at the expense of labour.

Figure 11: Share of capital and labour in gross profits

	Conventional Retail	New Economy
Sales less Cost of Goods Sold	100.0	100.0
Labour	71.1	56.7
Physical capital	12.7	24.8
Tax on profit	6.0	4.0
Investor	10.1	14.5

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows a normalised profit and loss statement of conventional retail and New Economy companies in the US. This statement is drawn using aggregate data of retail companies under CROCI's coverage in the US. Data is as available on 30 November 2016.

E-tailing has replaced labour with physical capital. The net winner thus far is the investor. The benefits accruing to the provider of risk capital are evident by looking at the operational characteristics of US bricks-and-mortar retailers versus US e-tailing.

The primary beneficiary of the e-tailing model is the owner of the financial capital, who sees their share of the pie increasing. The government is a net loser by the spread of the internet. The share of labour has come down and it has been replaced by a higher share of physical capital (computers and internet).

We were initially surprised by the higher level of capital required for e-tailers, but it makes economic sense. An e-tailer has a much shorter economic life for its investments (7 years versus 14 for a traditional retailer). This means that they may spend less at any particular moment, but the expenditure occurs more frequently. Thus the high level of revenue per employee is required to pay for the higher component of capital versus labour.

If all of US retailing were to result from e-tailing, then we estimate that there would need to be 40% fewer employees in the sector. Assuming that no other sector could absorb the excess created by the technology, the result would likely be a negative economic spiral as there would be less income for the government (but social costs would likely be higher).

Academic research suggests that new technology is responsible for a more polarised job market and is not creating many new jobs. In a recent paper[8], Berger and Frey from the Oxford Martin Programme on Technology and Employment argue that technological change since the computer revolution has reduced demand for workers with middle skills and increased the demand for high skills and low skills, which is resulting in a more polarized society.

They also estimate that only 0.5% of the workforce is currently employed in sectors that did not exist at the turn of the century. This compares with 8% of new jobs created by new industries in the 1980s and 4.5% of new jobs created by new industries in the 1990s.

Their conclusion is that the nature of current technological development is a key driver behind recent job polarisation and widening earnings disparities (p.18).

47% of US jobs are at risk to automation in the coming decade. This is the conclusion of research by Frey and Osborne (2013). 'Our model predicts that most workers in

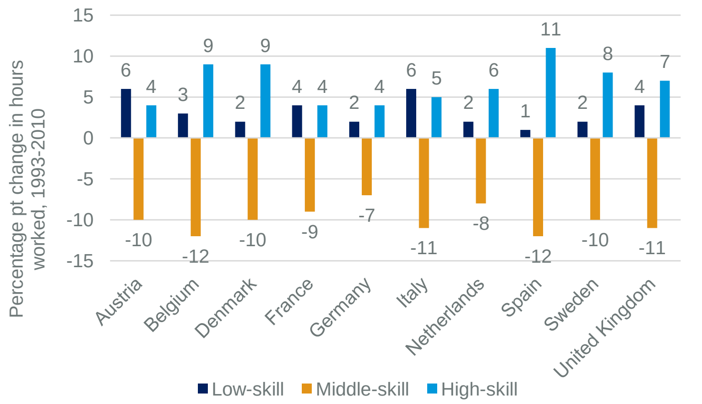
[8] Berger & Frey, *Structural Transformation in the OECD, Digitalisation, Deindustrialisation and the Future of Work*, 2016

transportation and logistics occupations, together with the bulk of office and administrative support workers, and labour in production occupations, are at risk.'

In 1931, John Maynard Keynes, the British economist, warned about the risks of technological unemployment due to the discovery of technology capable of economising the use of labour at a rate outpacing our ability to find new uses for labour (Economic possibilities for our grandchildren, 1931).

We should not be overly pessimistic about the long term, but there is little doubt in our mind that some of the stagnation in corporate revenues and investments is linked to the increasing polarisation in the job market, which in turn puts downward pressure on the middle class. Whether this is merely a phase or a longer-term trend is still to be seen.

Figure 12: Labour market polarization in selected OECD countries, 1993-2010



Source: Berger, T. & C. Frey (2016), *Structural Transformation in the OECD: Digitalisation, Deindustrialisation and the Future of Work,* OECD Social, Employment and Migration Working Papers.

Figure 13: Aggregate valuation and operational characteristics of conventional retail and e-tailers in the US

Aggregate (2016)	Conventional Retail	New Economy
Sales Growth	1.5%	25.4%
EBITDA Margin	8.4%	9.6%
CROCI	9.4%	14.7%
Number of Employees ('000s)	4,522	242
Sales / Gross Capital Invested	1.70	1.75
CROCI Cash Flow Margin	7.4%	16.3%
Tax rate	35.1%	30.5%
Accounting P/E	18.9	86.2
Economic P/E	26.7	58.8
EV / NCI	2.51	8.62
Sales	987,083	144,992
Share of the US retailing Market[9]	86.1%	13.9%
Economic Earnings	32,960	6,929

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of conventional retail and new economy retail covered by the CROCI team in the US. Data as on 30 November 2016.

[9] Estimate from the Centre for Retail Research, Nottingham UK. www.retailresearch.org/onlineretailing.php

1.4 Globalisation – a friend or foe?

Globalisation is often singled out as the culprit behind the current malaise affecting global growth. As discussed in section 1.2, consumption-to-capex ratios make the full effects of globalisation evident. "Globalisation" has largely been about manufacturing goods in China and selling them elsewhere. The big winners have been investment in China and consumption in Japan, Europe and the US.

If we accept that the benefits associated with increasing globalisation have run their full course, can we assume that a reversal can (1) produce benefits, (2) unfold in an orderly manner? Analysts and policymakers tend to assume that the process can be reversed at no cost, but this is not necessarily the case. There are three factors that investors should consider:

- the disinflationary nature of increasing globalisation;
- the positive welfare impact of increasing globalisation on developing economies;
- the impact on Chinese Financials of idle capital.

The advantage of globalisation for investors was illustrated in our 2011 report 'Is the 30 year trend of rising profitability about to end?' Back then we coined the term 'The GEM Raiders' to define companies and sectors that have improved profitability as a result of their ability to capitalise on the rising standards for the service and manufacturing sectors in developing economies, through (a) relocation of their production processes in lower cost countries, (b) outsourcing of their manufacturing and service processes to OEMs and foundries.

Back in 2011, we focused on Texas Instruments as a good illustration of how companies have been able to improve their profitability.

Figure 14: Texas Instruments – selected data

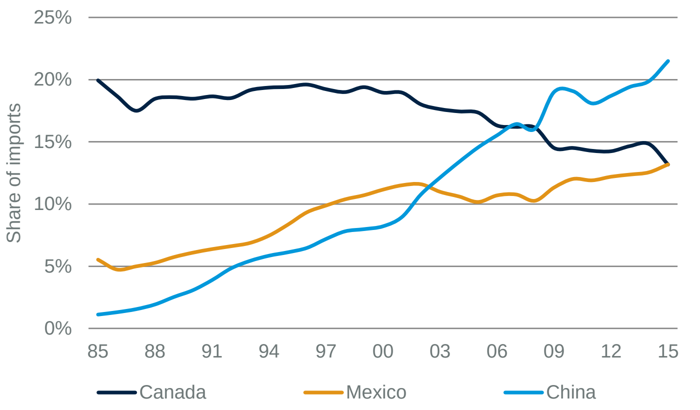
	2001	2006	2009	2010
Sales	8,201	14,185	10,427	13,966
EBITDA Margin	15.4%	33.3%	30.4%	39.6%
Headcount	34,724	30,986	26,584	28,412
Sales per employee	236k	458k	392k	492k
NTFA	5,589	3,950	3,158	3,680
Capex	-1790	-1272	-753	-1199
Capex/Sales	21.8%	9.0%	7.2%	8.6%

Source: Company accounts, Deutsche Bank.

"A basic comparative analysis shows that between 2000 and 2010 (peak to peak) the company was able to increase revenues by 17.6%. In the same period EBITDA margins went up by 720 bps and the capex to sales ratio fell by 14 percentage points.... As the capital component is falling, we would expect the company to be more labour intensive, but we also note that their number of employees has come down by 34% in 10 years; furthermore, during the last recession EBITDA margins went down by only 290 bps, compared to 1,700 bps in the previous one."

Globalisation has allowed companies to retain their pricing power while reducing labour and capital costs. From an economic theory standpoint, this is inherently contradictory as gross margins ought to be a function of capital intensity. Utilities have high margins because they are capital intensive; some service companies have lower margins because their capital requirements are lower. Thus, in an efficient market, a company shedding capital to third parties should see their margins coming down. Nevertheless, margins in corporate America have been rising at the same time as companies shed capital. With globalisation, companies have been able to have their cake and eat it.

Figure 15: Share of US Imports since 1985



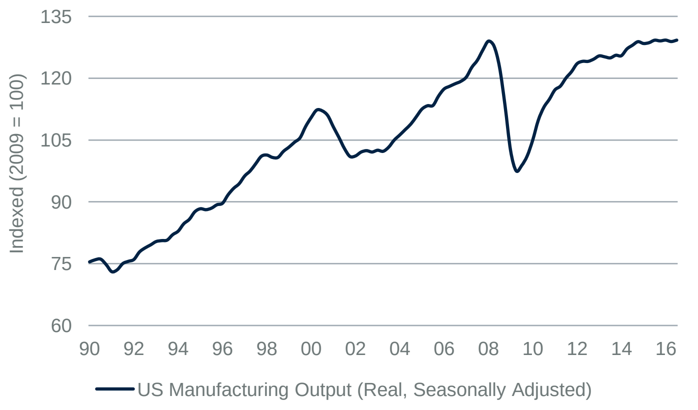
Source: Census data from Haver Analytics. Data as available on 02 December 2016.

Reversing globalisation will not be an easy process, and it is unclear whether it will bring any benefits to the wider economy, or what those benefits might be. OEMs were initially able to offer lower prices because of their lower labour costs, but as wage costs went up and working conditions started to deteriorate, their competitiveness came under pressure.

The approach taken by OEMs is to replace labour in Emerging Markets with capital. In May 2016, Foxconn announced its plans to replace 60,000 factory workers—out of a total workforce of 110,000—with "robotics engineering and other innovative manufacturing technologies to replace repetitive tasks previously done by employees" (BBC news, 25 May 2016).

Globalisation may be the focus of people's anger worldwide, but they may all be barking up the wrong tree. What is clear is that reversing globalisation will bring fewer benefits that many people seem to believe. Bringing some manufacturing back to the US may just end up increasing robotisation rather than labour. At the same time, if low skills jobs were to come back to the US, given the low unemployment rate, we could also witness increasing inflationary pressure, potentially for no genuine increase in economic output.

Figure 16: US Manufacturing Output



Source: St. Louis Fed. Quarterly data as available on 25 November 2016.

Figure 17: US Manufacturing Jobs

Source: US Bureau of Labour Statistics. Data as available on 24 November 2016.

Past performance may not be a reliable indicator of future performance. Forward looking statements or projections are subject to risks and uncertainties that may cause actual results to differ materially. See page 2 for important information.

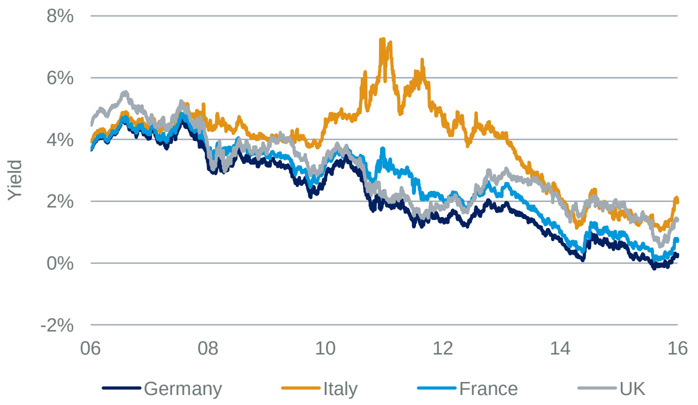
1.5 Emerging Markets

Over the next few years we are likely to see increased debate about the long-term effects of various economic policies on Emerging Markets. There will be much speculation on the potential benefits and costs. However, it is important for long-term investors to consider what effects have been caused by increasing globalisation. We would argue that the two primary effects have been convergence in bond yields convergence in the standard of living.

If the world becomes less globalised, these two effects are likely to witness an impact. In other words, there could be a divergence in both market returns as well as declines in standards of living.

Bond yields should start to diverge and economic policies become more regional in nature so that the regional aspect in economic policies becomes more relevant. When we look at the Euroland, it is evident that some of these processes are already advanced.

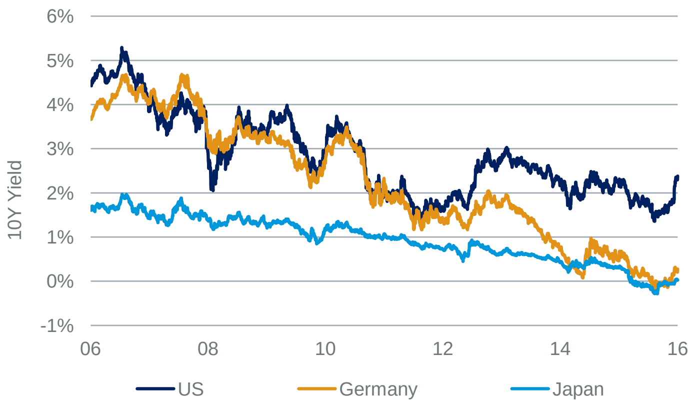
Figure 18: 10Y European government bond yields



Source: Bloomberg Finance L.P. Data as on 07 December 2016.

Meanwhile, bond yields on a global basis have this profile.

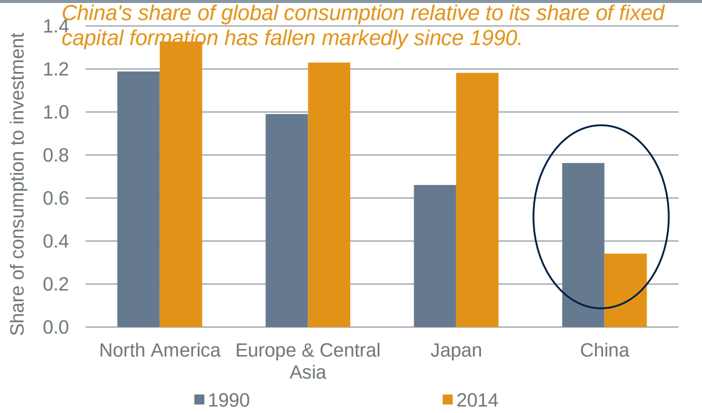
Figure 19: 10Y Government bond yields



Source: Bloomberg Finance L.P. Data as on 07 December 2016.

The standard of living question will need to be assessed continually and only time will tell. But the question needs to be analysed in the context of two components: (1) capital destruction and (2) inflation expectations.

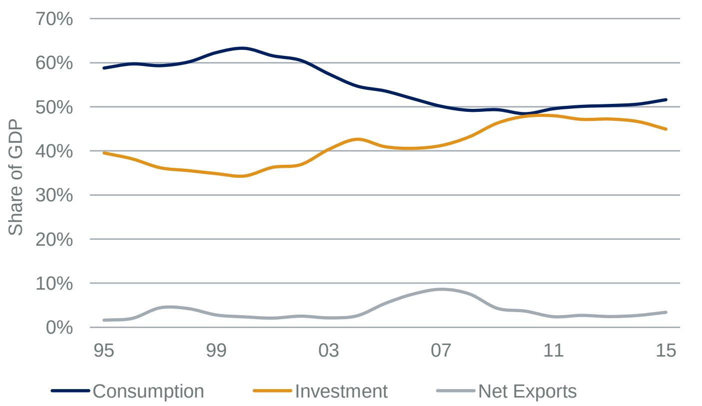
Figure 20: Regional share of global consumption relative to their share of fixed capital formation



Source: The World Bank, Deutsche Bank and CROCI. Data as available on 24 November 2016.

If the ratio of consumption to capital is lowest in China/Emerging Markets, that is because significant investments have been made there with a view to creating exports. Unfortunately, over the past decade, those additional investments have not delivered any significant economic benefit. If the situation were to deteriorate further, then the increased pressure on corporate cash returns could result in a structurally lower level of profitability.

Figure 21: Contributions to Chinese GDP



Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. Data as available on 24 November 2016.

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Figure 22: Fixed asset investment growth in China

Source: National Bureau of Statistics in China, Bloomberg Finance L.P. Data until October 2016 as available on 23 November 2016.

Emerging Market financials are likely to be one of the major risks, given that they have provided the bulk of this incremental capital to the EM companies. Our analysis suggests that the level of profitability in Chinese financials is too high relative to the level in Chinese industrials. Recently, Chinese industrials have been benefiting from a controlled devaluation of their currency, but risks remain.

A disorderly adjustment of the currency market cannot be ruled out.

Figure 23: Main EM messages to emerge from our analysis since 2011[9]

1. Overinvestment in Emerging Markets is diluting returns and resulting in poor inflation-adjusted earnings growth
2. Earnings growth in China is only coming from Financials. Non-Financial sectors have seen a collapse in profitability
3. Central banks' attempts to stimulate the economy increase the risk of a further misallocation of capital
4. State-Owned Enterprises in China are primarily responsible for the overinvestment observed in the region
5. Value in EM may only be illusory
6. A fall in corporate capital accumulation could translate into an Emerging Market slowdown
7. A lower pace of investment in China is likely to have an abnormal impact on specific industries, especially those at the commodity end of the market.
8. Lower Emerging Market GDP growth is likely to create oversupply in Energy and Materials

Source: Deutsche Bank, CROCI

Figure 24: Growth in capital has diluted profitability at Emerging Market[10] companies

		Economic Earnings		Growth in NCI		Growth in CROCI	
	Coverage	Ratio of companies with 2017 < 2010	Ratio of companies with 2017 < 2007	Median company 2017 vs 2010	Median company 2017 vs 2007	Median company 2017 vs 2010	Median company 2017 vs 2007
Brazil	9	78%	78%	-1.1%	-0.5%	-477 bps	-942 bps
China & Hong Kong	50	60%	60%	5.9%	8.9%	-331 bps	-698 bps
Korea	15	67%	53%	3.4%	5.0%	-620 bps	-188 bps
Taiwan	14	64%	50%	4.9%	4.9%	-699 bps	-669 bps
South Africa	10	40%	70%	2.5%	1.3%	-158 bps	-484 bps
EM	125	59%	58%	4.2%	5.7%	-429 bps	-599 bps
US	334	34%	35%	2.2%	2.5%	25 bps	2 bps
EU	226	42%	38%	2.7%	2.4%	-84 bps	-146 bps
JP	96	53%	64%	3.8%	3.1%	-113 bps	-308 bps
World	820	44%	45%	2.7%	2.9%	-87 bps	-166 bps

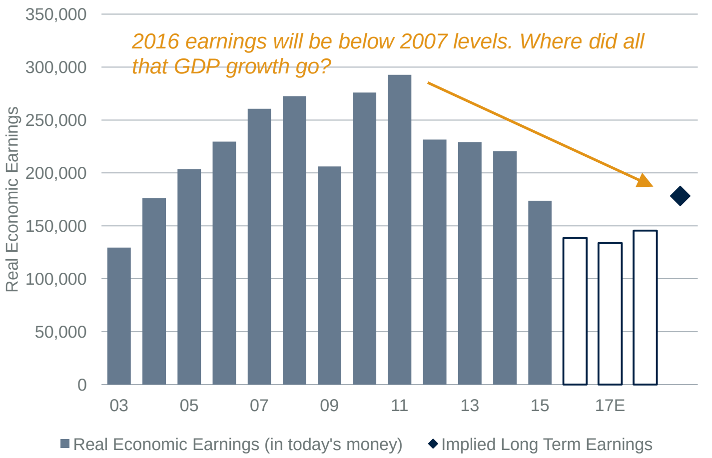
Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. Data as on 22 November 2016

[9] Please see the CROCI Views: The China Syndrome, 20 August 2015 for more details.

[10] Refers to CROCI's coverage in Brazil, China, Czech Republic, India, South Korea, Malaysia, Mexico, Peru, Poland, Russia, South Africa, Taiwan and Thailand.

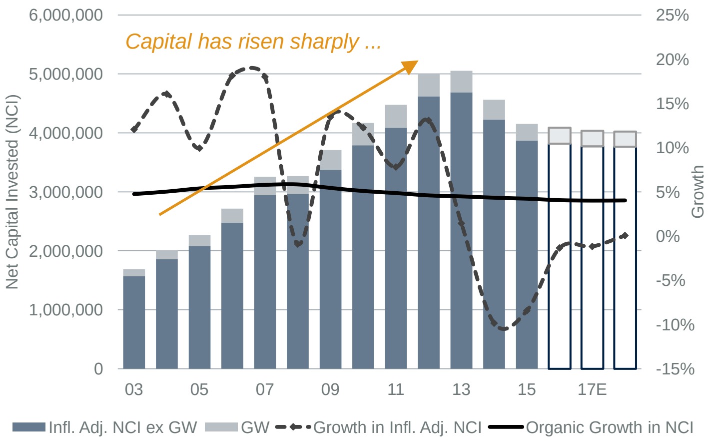
Real Earnings ex Financials in Emerging Markets are now below 2007 levels in aggregate

Figure 25: EMs ex Financials – Economic Earnings



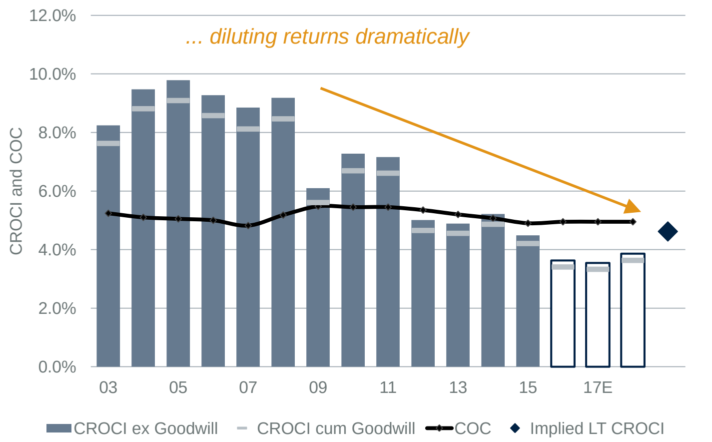
Source: Deutsche Bank, CROCI. Aggregate data of Emerging Market companies in CROCI's coverage. Data as on 6 December 2016.

Figure 26: EMs ex Financials – Net Capital Invested



Source: Deutsche Bank, CROCI. Aggregate data of Emerging Market companies in CROCI's coverage. Data as on 6 December 2016.

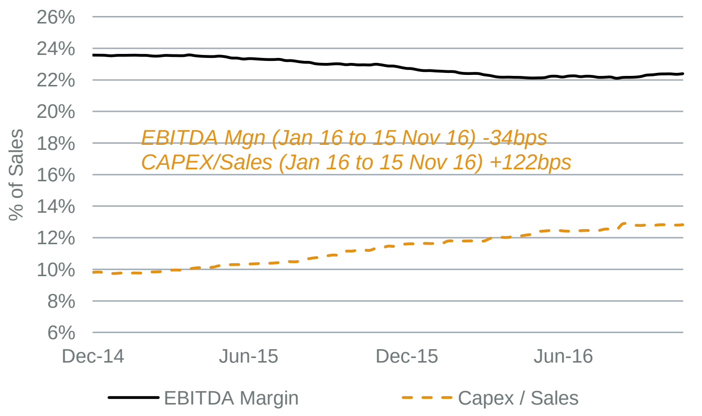
Figure 27: EMs ex Financials – CROCI



Source: Deutsche Bank, CROCI. Aggregate data of Emerging Market companies in CROCI's coverage. Data as on 6 December 2016.

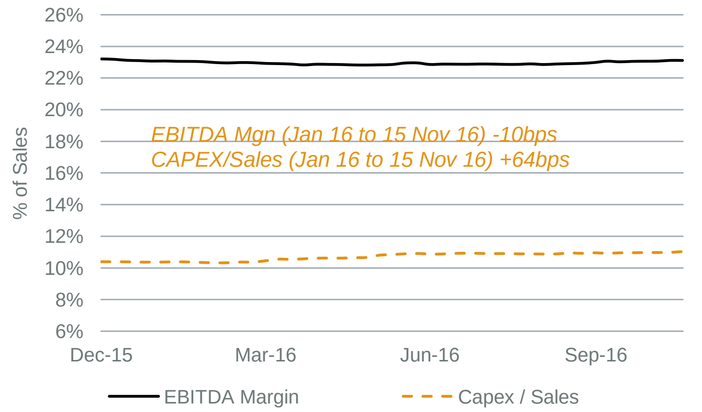
The dilution in profitability in Emerging Markets continues. Central banks' further attempts to stimulate the economy increase the risks of further misallocation of capital

Figure 28: EBITDA Margin and Capex/Sales – EMs 2016



Source: Deutsche Bank, CROCI. Aggregate data of Emerging Market companies in CROCI's coverage. Data as on 6 December 2016.

Figure 29: EBITDA Margin and Capex/Sales – EMs 2017



Source: Deutsche Bank, CROCI. Aggregate data of Emerging Market companies in CROCI's coverage. Data as on 6 December 2016.

Real earnings growth in China is all coming from financials; this does not reflect what is going on in the industrial sector

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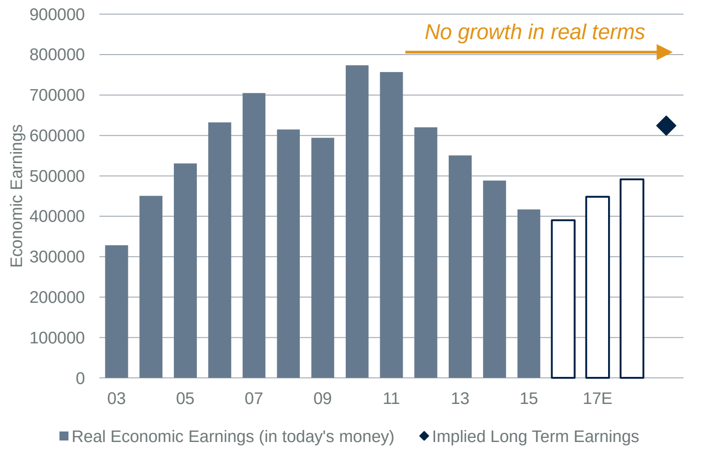
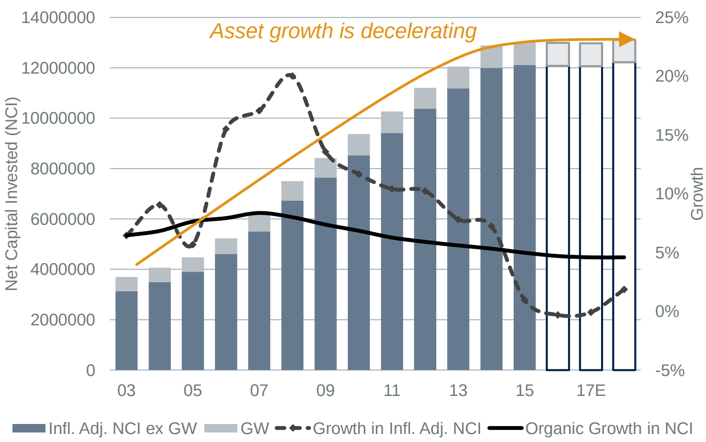
Figure 30: China ex Financials – Economic Earnings



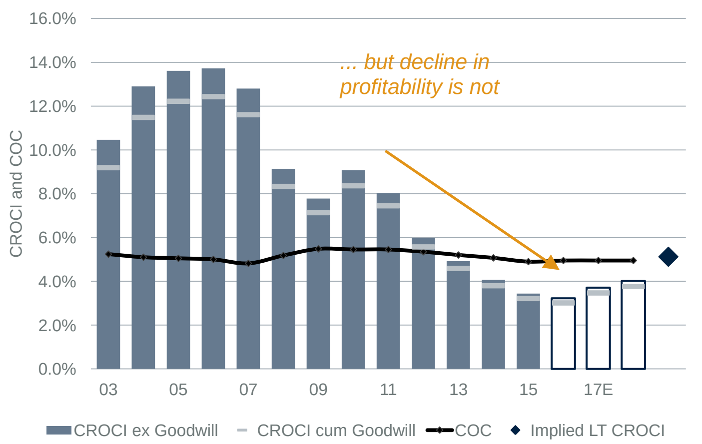
Source: Deutsche Bank, CROCI. Aggregate data of Chinese companies in CROCI's coverage. Data as on 19 December 2016.

Figure 31: China ex Financials – Net Capital Invested



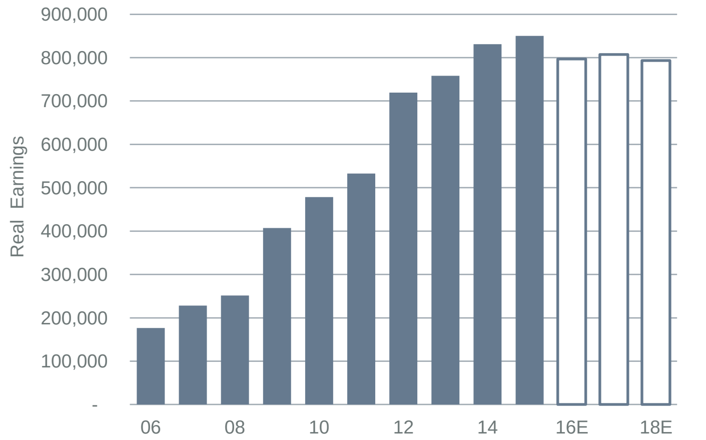
Source: Deutsche Bank, CROCI. Aggregate data of Chinese companies in CROCI's coverage. Data as on 19 December 2016.

Figure 32: China ex Financials – CROCI



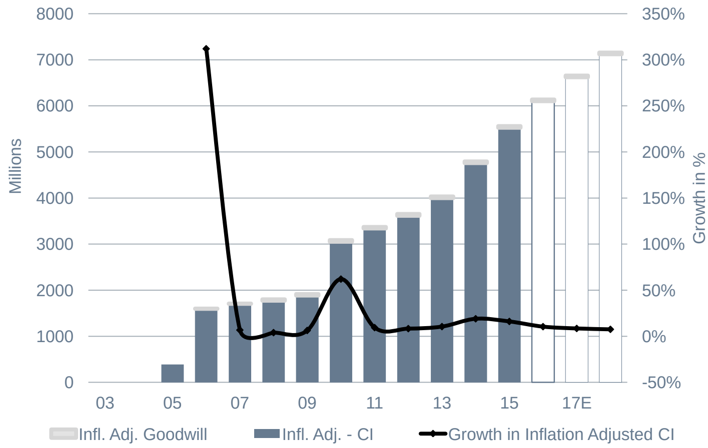
Source: Deutsche Bank, CROCI. Aggregate data of Chinese companies in CROCI's coverage. Data as on 19 December 2016.

Figure 33: China Financials – Infl. Adj. Earnings



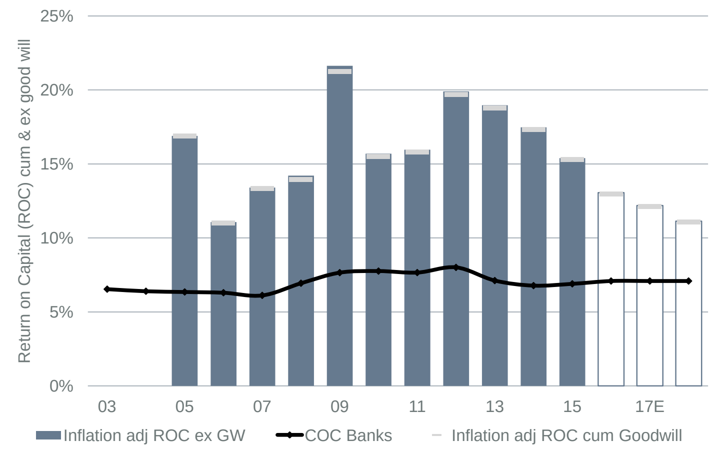
Source: Deutsche Bank, CROCI. Aggregate data of Chinese companies in CROCI's coverage. Data as on 6 December 2016.

Figure 34: China Financials – Infl. Adj. Capital



Source: Deutsche Bank, CROCI. Aggregate data of Chinese companies in CROCI's coverage. Data as on 6 December 2016.

Figure 35: China Financials – Infl. Adj. Return on Capital



Source: Deutsche Bank, CROCI. Aggregate data of Chinese companies in CROCI's coverage. Data as on 6 December 2016.

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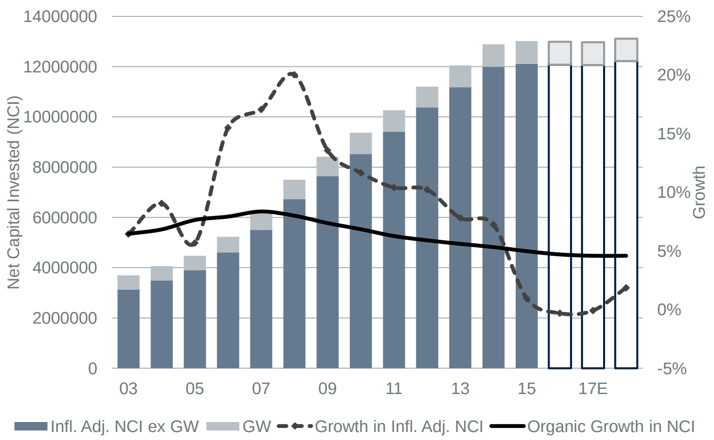
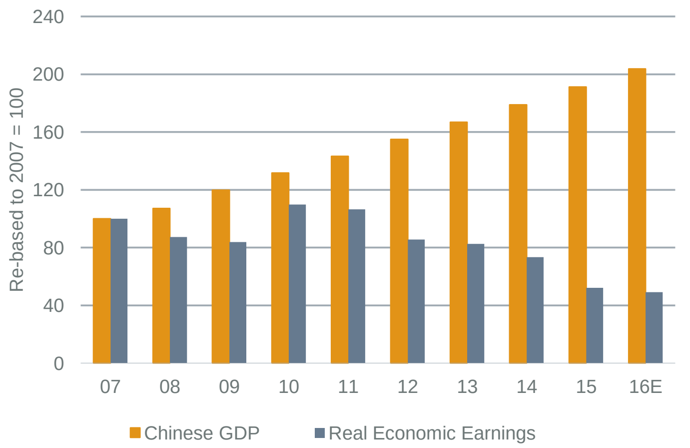
Figure 36: China ex Financials — Net Capital Invested



Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. Data as on 19 December 2016.

Figure 37: Chinese GDP vs. Economic Earnings growth



Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. Data as on 12 December 2016.

Past performance may not be a reliable indicator of future performance. Forward looking statements or projections are subject to risks and uncertainties that may cause actual results to differ materially. See page 2 for important information.

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Figure 38: China ex Financials - P&L and Valuation

	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Economic P / E (x)	24.2	21.0	17.5	16.9	19.0	21.2	24.3	33.4	32.7	27.9	24.4
Accounting P / E (x)	22.1	17.6	14.4	13.3	13.8	13.1	14.0	24.1	23.8	18.2	15.9
Yield (%)	2.4	2.8	2.9	3.0	2.9	3.1	2.9	2.3	2.0	2.2	2.5
P / BV (x)	3.1	2.4	2.3	2.0	1.7	1.5	1.4	1.7	1.5	1.4	1.3
EV / Sales (%)	201.9	173.0	136.6	110.6	99.0	91.8	94.3	131.9	123.3	111.5	100.7
EV / Adj. EBDIT (x)	10.5	8.7	7.5	6.9	6.7	6.4	6.5	8.5	7.8	6.7	6.1
EV / Free Cash Flow (x)		50.8	35.9	65.1		115.5	99.2	36.8	26.6	19.5	16.2
EV / Capital Employed (x)	2.5	2.0	1.9	1.6	1.4	1.3	1.2	1.4	1.3	1.3	1.2
Avg. Market Cap. (bn)	10,359	8,799	9,306	9,008	8,322	7,966	8,060	10,264	9,246	9,243	9,210
Enterprise Value (bn)	11,126	9,756	10,295	10,225	9,950	9,896	10,311	12,399	11,276	11,040	10,610
Key Ratios	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Revenue Growth	24.9	2.3	33.6	22.7	8.7	7.2	1.5	-14.1	-2.7	8.3	6.4
Revenue Growth (Median)	20.7	7.7	30.0	21.7	6.1	10.8	5.5	-2.7	-1.4	4.4	3.3
Adj. Net Profit Pre-Min. Growth	-11.4	6.1	30.7	5.2	-10.2	1.3	-6.1	-23.8	-6.6	28.3	13.6
Adj. EBDIT Mgn	19.2	20.0	18.2	16.0	14.7	14.4	14.5	15.5	15.9	16.5	16.6
Adj. EBIT Mgn	12.1	12.3	11.6	10.0	8.7	8.1	7.8	7.0	6.6	7.6	7.9
Adj. Net Prof. Pre-Min. Mgn	8.9	9.2	9.0	7.8	6.4	6.1	5.6	5.0	4.8	5.6	6.0
Depreciation / Sales	8.3	8.0	6.9	6.3	6.1	6.5	6.9	9.0	9.4	8.9	8.7
Capex / Sales	16.3	17.0	12.8	11.4	11.6	11.5	11.6	12.6	10.5	9.4	8.9
Free Cash-Flow / Sales (Post-Tax)	-0.8	3.4	3.8	1.7	-0.1	0.8	1.0	3.6	4.6	5.7	6.2
Dividends / Sales	3.6	3.4	2.7	2.6	2.4	2.3	3.1	2.5	2.0	1.7	1.7
Interest Cover (x)	18.3	20.8	23.0	20.0	14.4	12.6	11.0	8.5	7.3	9.5	12.1
Net Debt (-) Cash (+) / Equity	-15.4	-16.1	-15.7	-19.1	-24.4	-27.9	-31.6	-28.7	-25.4	-19.6	-12.9
Return on Stated Equity	14.9	14.2	16.3	15.4	12.4	11.6	10.1	7.1	6.0	7.8	8.4
Return on Cap. Employed (Post-Tax)	12.7	11.4	13.0	12.3	10.0	9.0	7.9	5.9	5.4	6.6	7.3
P&L (CNY bn)	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Turnover	5,511	5,640	7,537	9,249	10,054	10,779	10,938	9,400	9,144	9,902	10,538
Adjusted EBDIT	1,057	1,126	1,373	1,483	1,478	1,557	1,588	1,453	1,452	1,638	1,751
Depreciation	459	452	522	584	615	701	759	849	862	883	913
Adjusted EBIT	665	691	871	922	872	872	851	657	606	756	838
Pre-Tax Profit	553	641	810	857	795	776	731	511	499	683	778
Income Tax	141	149	184	196	194	190	191	139	127	164	187
Stated Net Profit Pre-Min.	478	522	670	705	646	670	592	460	405	552	628
Adj. Net Profit Pre-Min.	491	521	682	717	644	652	612	466	436	559	635
Minorities	22	20	36	39	40	43	37	40	47	51	56
Cash Flow (CNY bn)	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
EBIT before stock options	599	676	853	901	866	859	833	608	596	762	845
Depreciation	459	452	522	584	615	701	759	849	862	883	913
NWC and Provisions	-55	179	66	-67	-123	-30	-11	215	72	32	37
Operating Cash Flow	1,004	1,307	1,442	1,419	1,358	1,530	1,581	1,672	1,530	1,676	1,794
Proceeds from Share Issues	214	26	51	53	42	26	13	107	21	0	0
Dividends Paid	-197	-190	-206	-238	-245	-243	-336	-237	-184	-167	-184
Capex	-898	-960	-964	-1,057	-1,166	-1,239	-1,271	-1,181	-964	-932	-940
Net Other Investments	-218	-77	-187	-164	-147	-160	-47	-116	22	-7	-4
Change in Net Debt (-) Cash (+)	-212	-84	-63	-245	-378	-312	-313	47	142	324	413
Balance Sheet (CNY bn)	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Net Working Capital	-108	-212	-288	-205	-141	-169	-195	-373	-444	-478	-562
Net Financial Debt (-) Cash (+)	-539	-622	-686	-930	-1,308	-1,620	-1,933	-1,886	-1,745	-1,420	-981
Gross Tangible Fixed Assets	6,481	7,357	8,276	9,253	10,517	11,627	12,633	13,335	13,998	14,557	15,103
Net Tangible Fixed Assets	3,901	4,448	4,927	5,483	6,197	6,744	7,243	7,458	7,589	7,617	7,610
Other LT Assets	139	164	208	247	298	388	468	490	516	531	537
Stated Shareholder's Equity	3,324	3,665	4,132	4,581	4,983	5,357	5,643	6,003	6,281	6,621	6,978
Minorities	179	210	246	297	374	441	480	578	601	622	644

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of companies covered by the CROCI team in China and Hong Kong. Data in CNY bn as on 19 December 2016.

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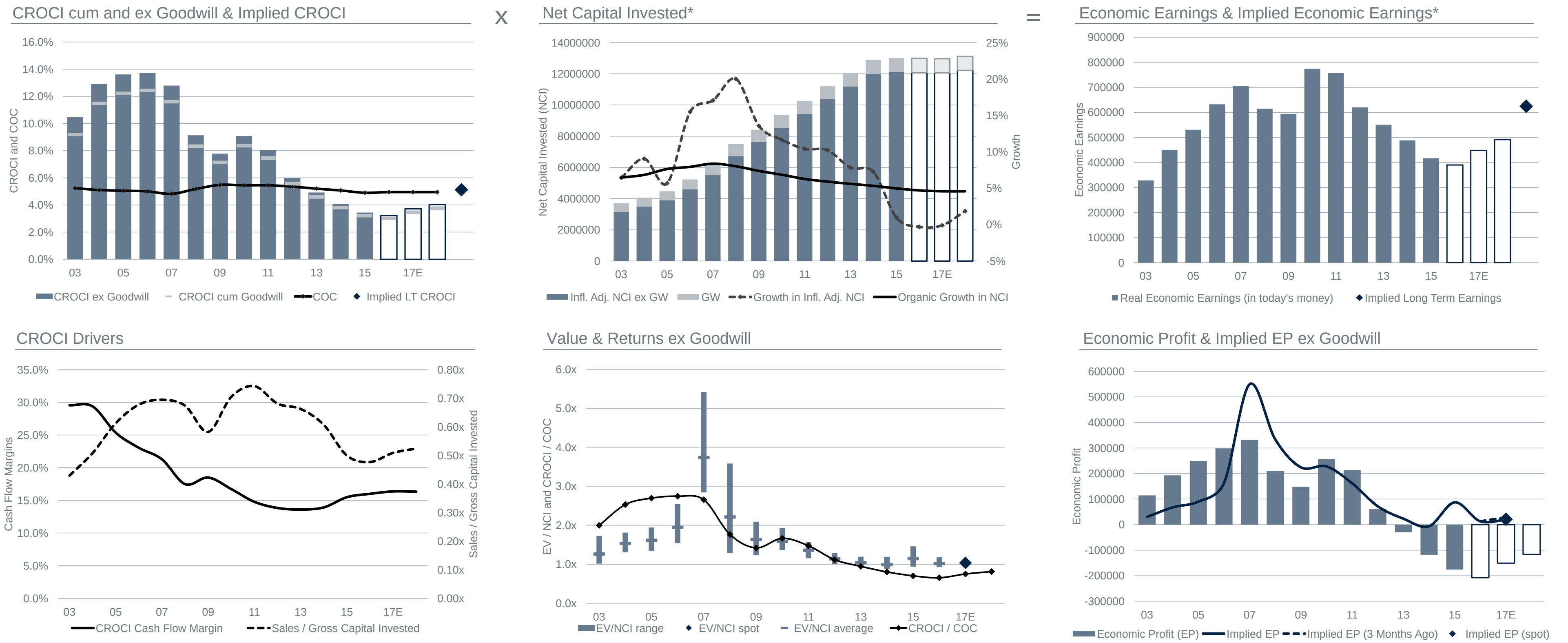
Figure 39: China ex Financials: CROCI



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Enterprise Value (CNY bn)	2768	3798	4681	6669	15562	11767	10538	11257	11209	11078	11136	11660	13830	8831	12616	12285
Market Cap (CNY bn)	2164	3071	3851	5653	14392	10359	8799	9306	9008	8322	7966	8060	10264	12339	9243	9210
EV/NCI Ex. GW	1.26x	1.54x	1.61x	1.95x	3.74x	2.21x	1.64x	1.59x	1.36x	1.14x	1.04x	0.99x	1.15x	1.02x	1.03x	0.98x
Economic PE	12.1x	11.9x	11.9x	14.2x	29.2x	24.2x	21.0x	17.5x	16.9x	19.0x	21.2x	24.3x	33.4x	31.6x	27.9x	24.4x
Accounting PE	9.6x	9.9x	9.7x	12.2x	27.3x	22.1x	17.6x	14.4x	13.3x	13.8x	13.1x	14.0x	24.1x	22.7x	18.2x	15.9x
Cost of Capital	5.24%	5.10%	5.05%	5.00%	4.82%	5.18%	5.48%	5.45%	5.45%	5.35%	5.20%	5.07%	4.90%	4.95%	4.95%	4.95%
CROCI Ex. GW	10.5%	12.9%	13.6%	13.7%	12.8%	9.1%	7.8%	9.1%	8.0%	6.0%	4.9%	4.1%	3.4%	3.2%	3.7%	4.0%
Implied CROCI	6.6%	7.8%	8.2%	9.7%	18.0%	11.5%	9.0%	8.7%	7.4%	6.1%	5.4%	5.0%	5.6%	5.1%	5.1%	4.8%
Implied Economic Earnings/ Economic Earnings	63%	61%	60%	71%	141%	125%	115%	96%	92%	102%	110%	123%	163%	157%	138%	121%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of companies covered by the CROCI team in China and Hong Kong. Data in CNY bn as on 19 December 2016.

Past performance may not be a reliable indicator of future performance. Forward looking statements or projections are subject to risks and uncertainties that may cause actual results to differ materially. See page 2 for important information.

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Section 2:

Equity Markets and Valuation

2 The valuation of global equities

1. Equities are expensive relative to history. This will cap equity returns for long-term investors, given that revenues are likely to grow below inflation again in 2017.
2. Still, equities could easily remain at elevated valuations for most of 2017, thanks to their strong fundamental underpinnings and assuming no major hiccups.
3. The two primary tail risks continue to be the deterioration of Chinese fundamentals and a much weaker outlook for US consumption by the end of 2017. Both risks could be associated with the tightening cycle, creating a new bout of demand for US dollars. One obvious likely consequence would be a rise in volatility, negative for equities.
4. In the medium term, the equity risk premium will eventually normalise.
5. Regionally, the US and Japan are cheap relative to Europe. Much of the apparent value in EMs is just optical.

Equities have struggled to generate revenue growth—it has been close to zero since 2011.

In the absence of growth, global corporates have tried to focus on increasing margins through cost-cutting

Figure 40: Global Equities P&L and Valuation (USD)

	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Revenue Growth	-11.7%	14.5%	14.8%	1.5%	0.5%	-0.7%	-10.7%	-1.1%	1.9%	3.9%
Net Profit Growth	-16.2%	40.3%	11.4%	-3.4%	1.7%	-1.0%	-10.5%	0.9%	11.2%	9.7%
EBITDA Margin	16.4%	17.4%	16.6%	16.1%	16.3%	16.3%	16.8%	17.2%	18.1%	18.6%
Tax Rate	32.6%	31.5%	33.1%	35.6%	33.8%	33.2%	35.1%	30.0%	29.0%	28.8%
Net Profit Margin	6.6%	8.1%	7.8%	7.5%	7.6%	7.5%	7.6%	7.7%	8.4%	8.9%
Capex (USD bn)	1,275	1,385	1,650	1,764	1,768	1,758	1,656	1,522	1,461	1,463
Capex-to-Sales	7.7%	7.3%	7.6%	8.0%	8.0%	8.0%	8.4%	7.8%	7.4%	7.1%
FCF-to-Sales	6.9%	6.4%	4.9%	4.1%	4.6%	5.1%	5.5%	6.7%	7.6%	8.2%
Acc. P/E Ratio	15.4x	13.1x	12.8x	13.6x	15.2x	17.0x	19.2x	19.2x	17.4x	15.8x
FCF Yield	5.6%	5.2%	4.2%	3.5%	3.5%	3.5%	3.3%	4.0%	4.5%	5.2%
Dividend Yield	3.0%	2.8%	3.0%	3.0%	2.8%	2.7%	2.6%	2.5%	2.5%	2.7%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of the companies covered by the CROCI team. Data as on 15 December 2016.

Revenue growth is critical, because :

1. Margins
2. Profits

are both at peak levels, having been supported by globalisation in the good times.

In an environment where there is popular clamour to reverse globalisation, there is a risk that these benefits could evaporate… and:

3. Valuation is already rich

At the moment, investors can draw some comfort from the highest FCF yields since 2013, which are supporting elevated levels of dividend yield

2.1 Equity valuations are elevated: sustainable in the near term, risks in the medium term

A flat level of real earnings in 2016, following five successive years of earnings decline, has been enough to propel equities up by 5.4%[10], which brings the annualised total return of the MSCI World Index to an impressive 10.1% over the period[11]. The net result is that the Economic P/E for the median global company is now at levels not seen since the TMT bubble.

This has been caused by a divergence between the two components of P/E:

- Profitability of assets: median cash returns have fallen for the past decade, dragged down by falling asset productivity.
- Valuation of assets: despite this fall in profitability, median economic price-to-book has now risen to over 2x, its peak since the financial crisis.

Equities are expensive relative to history

There are ultimately only two drivers of equity markets—earnings growth and risk aversion.

- Earnings have actually been in decline since the financial crisis.
- In the absence of growth, continuously declining risk aversion has actually been the driver of buoyant global equity markets.

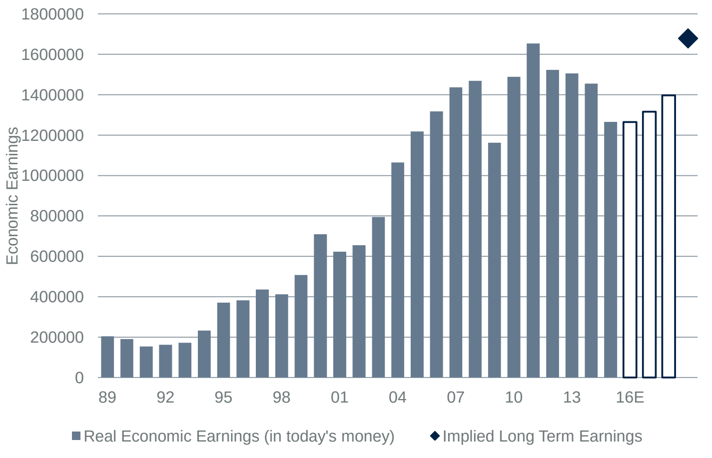
At a constant level of earnings, risk aversion can be measured by the cost of capital, which moves inversely to share prices. Median global economic P/E ratios are now at their highest level since the TMT bubble in 1999, suggesting that investors' level of bullishness is quite high.

Mean reversion of rates—a reliable long term assumption

It is not the case that significant changes in risk aversion are needed to move the market. Since 2012, the entire move in equity markets can be accounted for by around 60bps change in risk aversion. This trend is certainly sustainable in the short term. Markets could rise by around 30% if the global cost of capital were to reach its 2008 nadir. But, by then, long-term fundamental investors would likely be sounding alarm bells already.

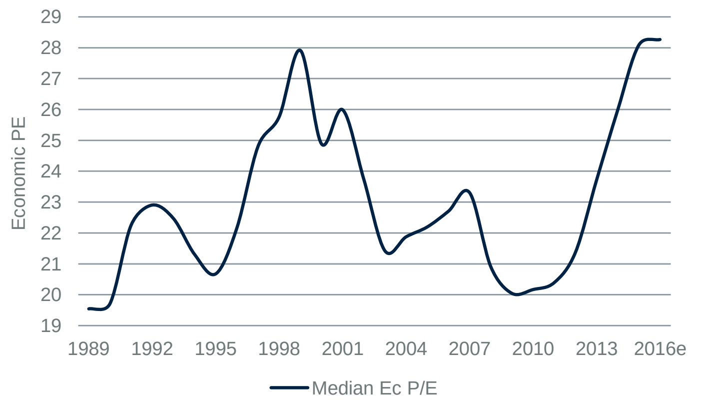
In the past, fundamental equity investors have been able to rely on a continuous process of mean reversion. Long patterns have emerged and have been reliable guides to market participants. So, whilst at current valuations, long-term equity investors can expect a real return of 5.0% over the cycle, this is below the average long-run return on equities of 5.4%, to which there has traditionally been a strong magnetic attraction.

Figure 41: Global Economic Earnings in real terms



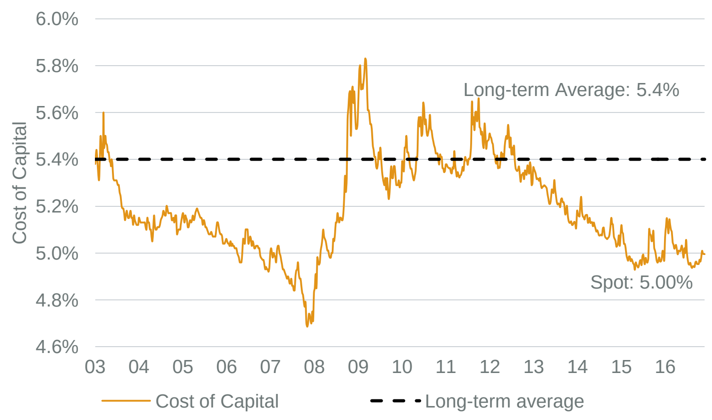
Source: Deutsche Bank and CROCI. Data as on 29 November 2016.

Figure 42: Median Economic PE chart since 1996



Source: Deutsche Bank and CROCI. Data as on 29 November 2016.

Figure 43: Cost of capital measured weekly since 2003



Source: Deutsche Bank and CROCI. Data as on 30 November 2016.

[10] YTD performance of MSCI World Net Total Return index to 5 December 2016 in USD

[11] 30 December 2011–5 December 2016, MSCI World Net Total Return index in USD

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The cost of capital could mean revert over the medium term if inflationary pressure rises and economic growth disappoints.

Two plausible scenarios seem the most likely routes to a rise in the cost of capital.

The first stems from Trump's campaign agenda on trade, which would cause the withdrawal of the monetary stimulus which has underpinned equity performance over the past five years.

- Protectionism is one of the key policies Trump has identified
- The conclusion from Section 1 is that a rise in protectionism may well lead to a further decrease in globalisation trends, which is likely to be inflationary.
- Broad inflationary pressure, combined with potentially elevated growth expectations (which may be illusory), could lead to further strengthening of the US dollar.
- The resulting tightening cycle would lead to rising interest rates and, with the associated volatility, would likely cause a fall in equity prices.

One of the principal arguments supporting equity valuation lately was that equities were cheap compared to bonds because real rates were low or negative. Thus, if real yields were to start to normalise, then one could also perhaps expect a similar normalisation in equity valuation, which could therefore fall by more than 20%.

Figure 44: Sensitivity of global equities market cap and enterprise value to moves in the cost of capital

COC	EV/NCI	MV move	EV move
5.40%	1.08x	-20.9%	-16.8%
5.25%	1.16x	-12.9%	-10.3%
5.15%	1.23x	-6.8%	-5.5%
5.05%	1.30x	0.0%	0.0%
4.95%	1.38x	7.6%	6.1%
4.85%	1.47x	16.1%	13.0%
4.70%	1.62x	31.0%	25.0%

Source: Deutsche Bank and CROCI. Data as on 24 November 2016.

CROCI Flex estimates current expected returns on equities could currently be as low as 3.8%

One way of estimating the current market-implied expected return on equities is through CROCI Flex, an asset allocation model. Based on the standard CROCI Flex approach[12], the current allocation to equities would be 2%, well below the historical average of 61%.

Assuming the investment cycle is around mid-cycle today, we can determine what level of expected return is required for equities to achieve an allocation of 61%. Keeping everything else equal, investors would need to accept a long-term rate of return of 3.8%, but would find no associated reduction in risk.

A second scenario could follow from declining Chinese fundamentals, a key tail risk in our mind.

- The associated decline in growth would be negative for equities
- China's ability to fund the US deficit would be also affected by domestic growth problems
- The combination would put global equities under substantial pressure, as witnessed in early 2016.

Figure 45: Theoretical sector allocation based on a 3.8% expected return on equities, as derived from CROCI Flex

GICS Sector	CROCI Flex at 3.8% exp. return	Rel. to MSCI World
Consumer Discretionary	13.1%	4.9%
Consumer Staples	20.9%	3.7%
Energy	0.0%	-11.6%
Financials	0.0%	-10.2%
Health Care	27.5%	14.1%
Industrials	11.1%	1.4%
Information Technology	14.9%	5.5%
Materials	2.1%	-3.8%
Real Estate	0.0%	-1.0%
Telecommunication Services	2.5%	-3.1%
Utilities	7.9%	0.1%

Source: Deutsche Bank, CROCI, MSCI. Data as on 7 December 2016.

12 CROCI Flex is a bottom-up allocation model that allocates capital between cash and equities, using a measure of risk-adjusted expected return as a hurdle rate (5.4% expected return; 19% LT vol.) to determine the relative attractiveness of specific equities.

What underpins the long-run expected return of 5.4%?

The long-run expected return is made of two components:

1. The (real) risk-free rate, the theoretical long-run rate of return on an investment with no risk of financial loss (a traditional proxy might be the long-term (real) yield on US Treasuries).
2. The equity risk premium, the excess return that investing in the stock market provides over the risk-free rate—a compensation for the relatively high level of risk inherent in equities.

The equity risk premium always reflects the risk-appetite of equity investors, and its long-term average (around 2.4%) should be unaffected by external macro-economic trends

The risk-free rate has historically shown very strong mean reversion, as demonstrated by the ultra-long time series for two risk-free rate proxies—UK Consols and US Treasuries. The charts opposite show how both yields have gravitated strongly towards a real 3% mean level over the very long-term.

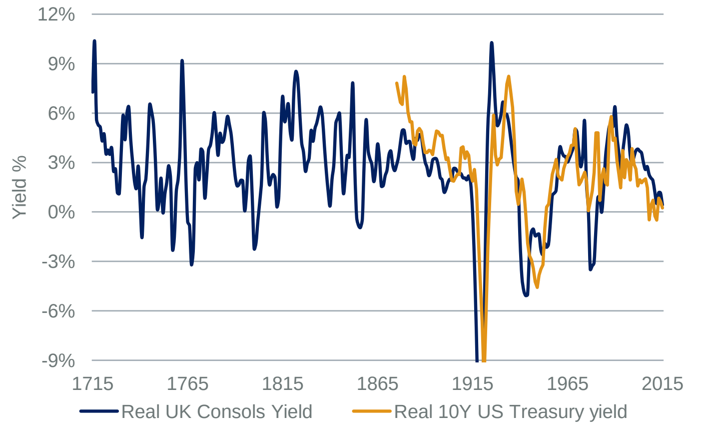
Some commentators have questioned whether the real risk-free rate has been pushed down by a long period of falling global bond yields. What would that mean for valuation?

Let us consider two scenarios around the risk-free rate:

1. The natural rate of interest[13] remains structurally lower. Most models agree that the natural rate has fallen dramatically at least since 2000, with many current estimates being close to 0%[14]. Both long-run and current levels of the cost of capital become lower. Markets do not become materially cheaper, but expected returns on equity fall[15].

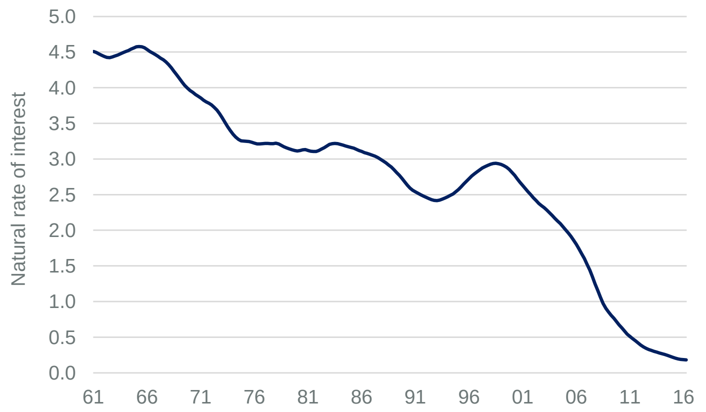
2. The natural rate of interest mean reverts to long-run levels. Some research is already projecting a substantial rise in the natural rate by the start of the 2020s [16] . Continuing rising bond yields would indicate that this process could be underway. Markets look at least 20% overvalued on that basis, and long-run expected returns on equity revert to 5.4%.

Figure 46: Real yield on UK and US bonds since 1715



Source: Bank of England, Shiller. Data as available on 5 December 2016.

Figure 47: Natural rate of interest since 1961



Source: "Measuring the Natural Rate of Interest," by Thomas Laubach (Board of Governors of Federal Reserve System) and John C. Williams (San Francisco Federal Reserve) Data as available on August 23 2016.

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[13] The inflation-adjusted interest rate consistent with full use of economic resources and steady inflation. Only if Fed rates are lower than the US natural rate—the theory goes—is US monetary policy accommodative.

[14] San Francisco Fed, FRBSF Economic Letter, August 26 2016

[15] Lower long-term growth rates would translate into a lower cost of capital, as the level of mean reversion for growth would be lower

[16] Richmond Fed, Thomas A Lubik, Christian Matthes, .*Calculating the Natural Rate of Interest: A Comparison of Two Alternative Approaches*, Richmond Fed Economic Brief, October 2015

2.2 Equities have sound operational underpinnings, but need to rediscover growth to become attractive

Over the course of 2016, markets have been resilient. Investors have been able to treat market weakness as a buying opportunity[17], despite the change in political tone over the course of the year.

In large part, this support has been helped by the operational underpinnings of global equities, which we find to be solid—crucial for those who are focused on the final destination. For this reason, investors should not be overly concerned about the significant level of volatility that could easily flare up over the course of the next 12 months, as a result of political and economic uncertainty. The choice between positioning for the journey or the destination thus becomes a matter of investor preference.

For example, measured relative to market cap, 2017E financial leverage is not materially higher than it was before the financial crisis hit[18]. Relative to operational income, potentially optimistic forecasts also flatter the leverage (2016E ratios look a little more elevated).

Free cash flow (FCF) conversion of sales has actually improved since 2007, thanks to a combination of improving fundamentals, including gross margins reaching new peaks, lower tax rates and lower capital investment. This improvement means that FCF yields are now over 4%, their highest level since 2011 despite the fall in risk aversion since then. This underpins the global dividend yield of 2.6% with a wide buffer, especially given the aggregate low levels of corporate debt despite the low interest rate environment.

It's worth noting that, despite these improvements, asset productivity has fallen consistently since 2007, which has dampened global cash return levels. This decline was thanks to high investment (from Energy and Materials in particular) in the denominator, but also because of the absence of revenue growth to drive the numerator.

Revenue growth remains the challenge

Strong operational characteristics notwithstanding, the absence of growth continues to be a major cap for equities. Meagre corporate revenue growth will have to improve. Even if / when equities manage to achieve revenue growth, the tail risks highlighted in Section 1 could still become more of a concern.

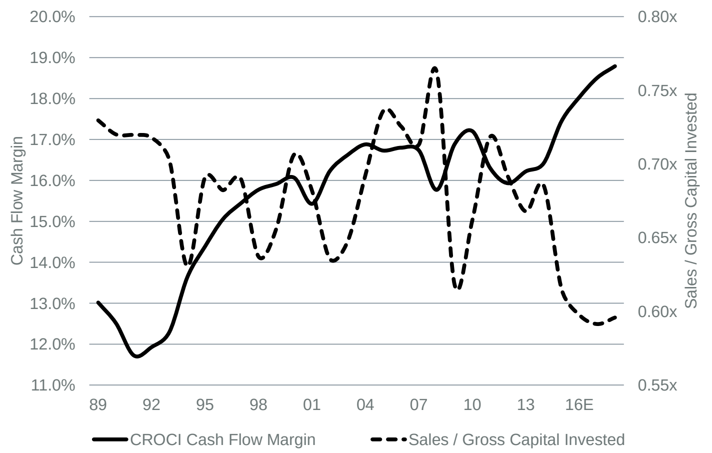
If equities' growth rate is eclipsed by the simultaneous rise in bond yields and inflation potentially generated by Trumpian fiscal stimulus, then equity valuations could fall sharply, just as they did in 1987.

Figure 48: Global operational characteristics 2007 and 2016 & 2017

	2007	2016E	2017E
Sales / GCI (x)	0.71	0.60	0.59
EBITDA Margin (%)	17.3	17.2	18.1
CROCI (%)	8.4	6.5	6.7
Capex / Sales (%)	7.7	7.7	7.4
FCF / Sales (%)	5.3	6.8	7.6
FCF Yield (%)	3.5	4.1	4.7

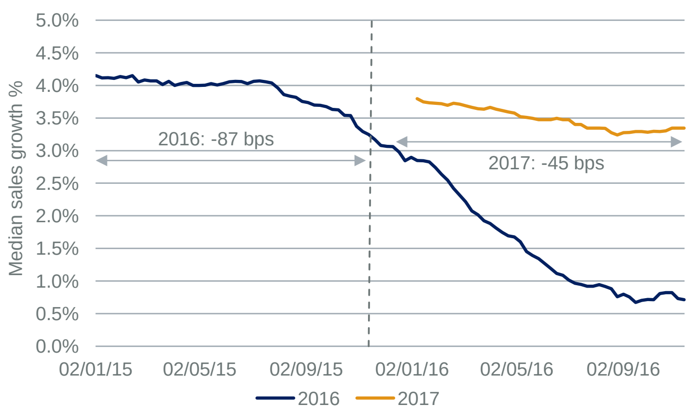
Source: Company reports, CROCI, Deutsche Bank. The table shows agglomerated data of the companies covered by CROCI in each of the years shown. Data as on 7th December 2016.

Figure 49: Global asset productivity has fallen whilst margins have improved



Source: Deutsche Bank, CROCI,. Data as on 24 November 2016.

Figure 50: Evolution of median sales growth forecasts for listed global equities



Source: Company reports, Bloomberg Finance LP, Deutsche Bank, CROCI The chart shows median sales growth of companies in CROCI's global coverage. Data as on 8 December 2016.

[17] MSCI World has been seen support after periods of price decline

[18] See Figure 1, page 4.

Past performance may not be a reliable indicator of future performance. Forward looking statements or projections are subject to risks and uncertainties that may cause actual results to differ materially. See page 2 for important information.

2.3 Regional Valuations: US & Japan appear cheap relative to Europe

Globally there is very high convergence in valuations, with median P/Es for Japan, US and Europe all just below 25x on 2017 CROCI numbers. That the market is valuing these three different blocs similarly is surprising to us in the light of the likely decoupling of growth in an environment of political nativism. It is difficult to imagine similar economic outcomes in the different regions.

US vs. Europe Many commentators place US equities on a substantial valuation premium to the rest of the world. Whilst it is true that on conventional accounting analysis the US looks more expensive than Europe, on CROCI's economic analysis the result is reversed. In fact, their valuation ratios have traded very closely since the financial crisis.

This convergence of valuation seems unsustainable. Not only does the US have higher FCF generation, lower capital requirements and younger assets, but also is likely to be the major beneficiary of de-globalisation trend that started in 2016. On the other hand, Europe has greater exposure to high capital intensity sectors.

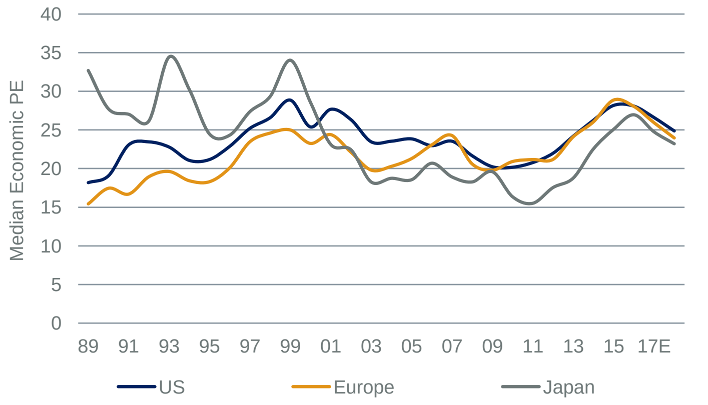
The US has seen flat to slightly growing economic earnings since the start of the century with only one notable exception in 2009, whereas Europe's economic earnings have declined since 2010. In large part this is because, since 2007, European cash returns have slumped to the cost of capital thanks to the large and dilutive incremental capital investment over that period, whilst US returns have held up.

Figure 51: Operational characteristics US, Europe, Japan

2017E	US	Europe	Japan
Sales growth	4.3%	5.1%	2.1%
EBITDA Margin	20.2	17.2	13.0
Sales / GCI	0.68	0.56	0.61
CROCI	10.2%	5.8%	3.3%
Economic P/E	24.6x	26.8x	28.3x
EV / NCI	2.49x	1.57x	0.94x
FCF Yield	4.8%	4.6%	3.6%
Dividend Yield	2.3	3.5	2.3

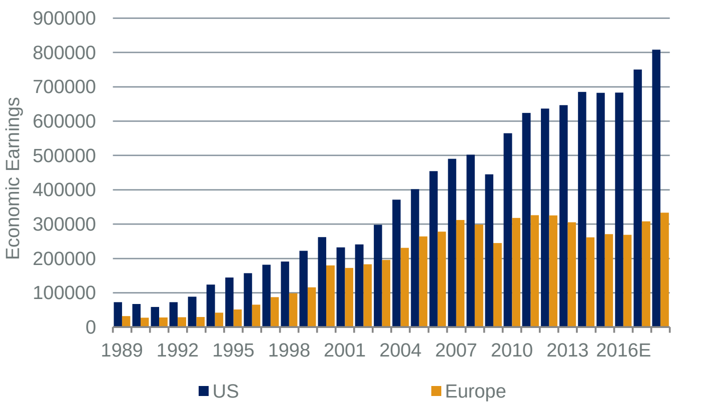
Source: Company reports, CROCI, Deutsche Bank. The table shows agglomerated data of the companies covered by CROCI in each of the regions shown. Data as on 07 December 2016.

Figure 52: Median Economic PE for US, Europe, Japan



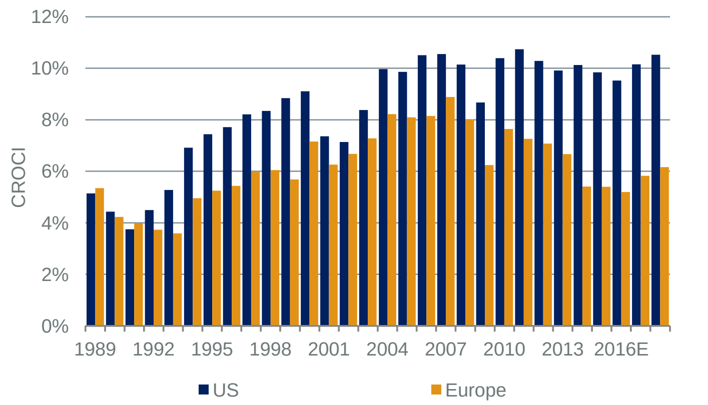
Source: Deutsche Bank, CROCI. Data as on 30 November 2016.

Figure 53: US vs Europe Economic Earnings



Source: Deutsche Bank, CROCI. Data as on 30 November 2016.

Figure 54: US vs Europe Cash Returns



Source: Deutsche Bank, CROCI. Data as on 30 November 2016.

In a less globalised world, the differences between the two regions are likely to become exacerbated. Whilst there is certainly a risk to the US's margins in a Trumpian world, the divergence in growth rates could potentially be rather pronounced. This potential divergence is not being sufficiently reflected in the valuation convergence.

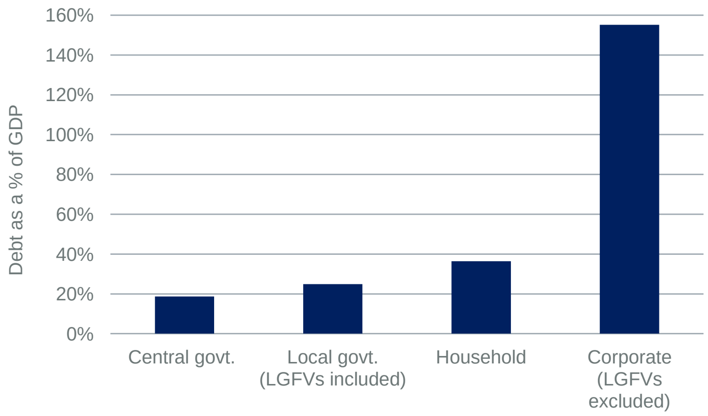
Japan has the lowest median Economic P/E of any region and the widest dispersion of valuation (see page 31), meaning that it is good market for stock pickers. Second, they have a higher dividend yield than their US equivalents.

There are genuinely attractive parts of the market from a cash generation perspective. One-third of the stocks under CROCI coverage create value relative to the global cost of capital, having managed to sustain cash returns of over 7% in aggregate for well over a decade. Japanese equities would be a key beneficiary of any improving corporate governance, prompted both by greater shareholder activism and stricter rules for domestic investment. On top of that, any improvement in revenues has an even greater effect in Japan than in other markets, as Japan has the highest operational leverage in the developed world.

Japan also has by far the highest proportion of low price-to-book companies of any region. Even though it has fallen over the past five years, the proportion is still close to half.

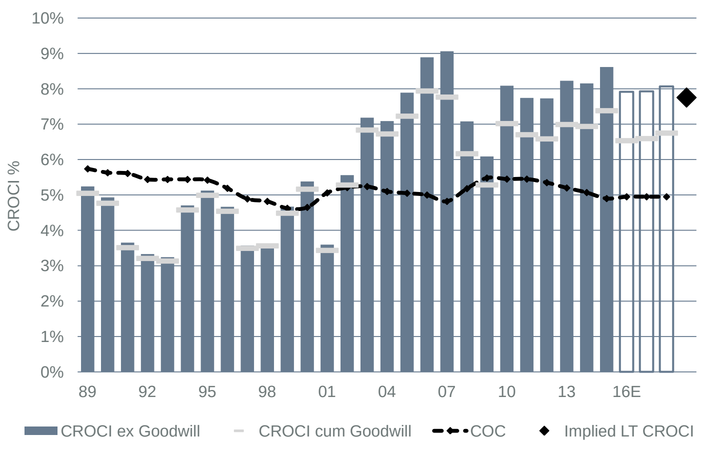
Emerging Markets are showing up as attractive on Economic P/E multiples, but investors should be wary for two reasons. First, the operational characteristics are challenging. Over the past few years, Emerging Market growth has been driven by addiction to dilutive capital, financed by banks, as the export market slowly ground to a halt. In China, for example, the majority of total debt sits in the corporate sector as a consequence. Second, a reversal in globalisation could substantially damage the profitability of EM companies that had benefited from DM outsourcing.

Figure 55: The majority of Chinese debt is in corporates



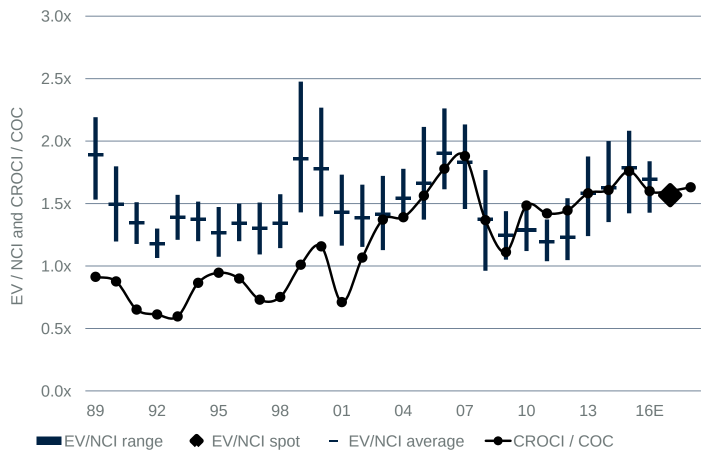
Source: Deutsche Bank, NAO, NBS and CEIC. Data for 2014 and is as available on 19 August 2015

Figure 56: Cash returns of the value creative companies in Japan



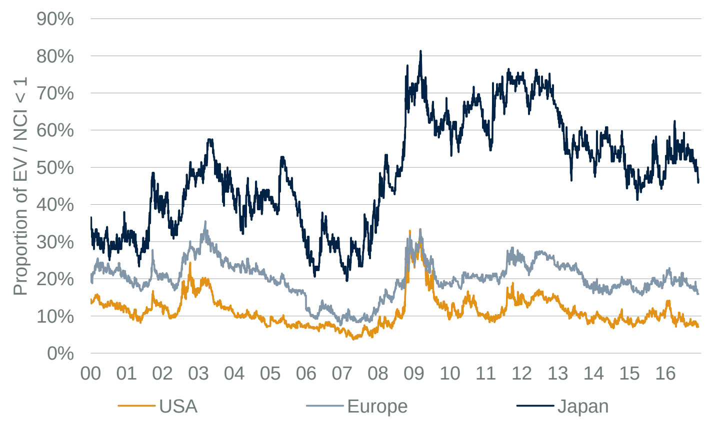
Source: Deutsche Bank, CROCI. Data as on 5 December 2016.

Figure 57: Valuation vs. profitability of the value creative companies in Japan



Source: Deutsche Bank, CROCI. Data as on 5 December 2016.

Figure 58: Proportion of companies with EV/NCI < 1



Source: Deutsche Bank, CROCI. Data as on 5 December 2016.

2.4 Dispersion of valuation is still wide

Regional Valuation: converging

- Convergence first happened at the start of 2016 when valuations were at peak levels, but since then median Economic P/Es have fallen to less than 27x[19].
- The US (2017E Ec P/E 26.6x) and Europe (25.9x) have traded close together since the financial crisis, although before that the US always traded at a premium.
- The Japanese median Economic P/E is now the lowest any of the regions. Valuations in Japan have fallen (2017E median Economic P/E is now 24.7x, vs 25.6x at the start of 2016).

Regional Dispersion: at long-term wides

- The gap between the value end of the market and the median company is at peak levels compared to the past decade, suggesting that there is good scope for stock picking.
- In the US, the cheapest decile is on an Economic P/E of 16.5x, a discount of 42% to the market. European value stocks are on a 36% discount to the market. For both, this is the widest level since the TMT bubble.
- In Japan, the cheapest decile is at an Economic P/E of 15.3x (a 48% discount to the market).

Figure 59: US—dispersion of valuation

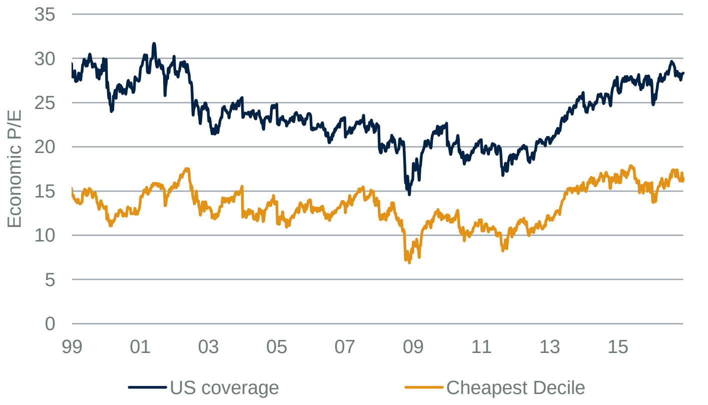


Figure 61: Europe—dispersion of valuation

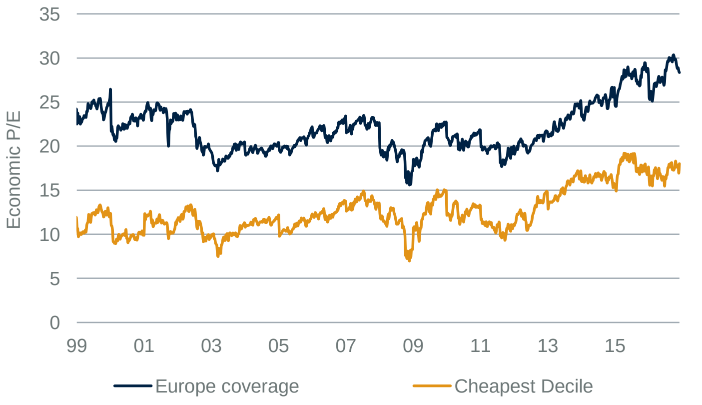


Figure 60: Japan—dispersion of valuation

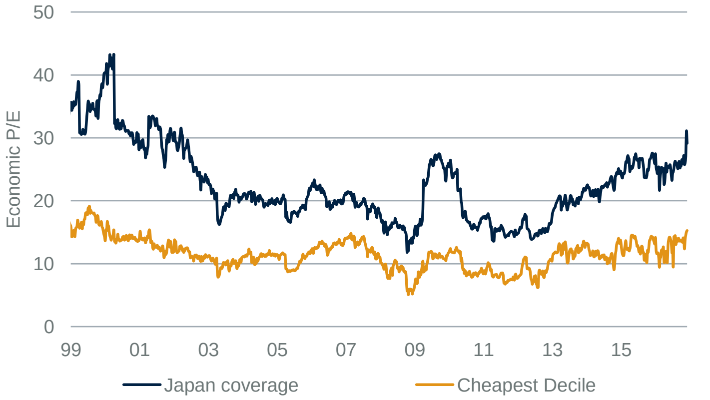


Figure 62: Median 2017E Economic P/E of selected CROCI Investment Strategies

	2017E Economic P/E
CROCI US	19.7x
CROCI US Dividends	23.7x
CROCI Euro	21.8x
CROCI Japan	23.2x
CROCI World	21.3x
CROCI Sectors	17.3x
CROCI Global Dividends	21.8x

Source: CROCI, Deutsche Bank. Data as on 5 December 2016. The charts show median Economic P/E of the companies in CROCI's coverage in each of the regions and those in the cheapest decile in these regions.

[19] On 2017e numbers based on consensus forecasts

2.5 Sector Valuations

Health Care and IT are the cheapest sectors based on aggregate 2017E Economic P/E, both trading at more than a 20% discount to the third cheapest, Industrials, on a 2017e Economic P/E basis.

Health Care has been the second best performing sector in the MSCI World index over the past five years (MSCI Health Care returned 14.4% annualised, outperforming the broader index by annualised 389 bps up to 30 November). Although this has worked off the deep undervaluation that existed in the sector since 2009, at 18.7x 2017E Economic P/E, Health Care remains the cheapest global non-financial sector. Health Care is one of only two industrial GICS sectors that has managed to grow its Economic Earnings since the financial crisis (the other is Information Technology). They have managed to keep their cash returns very stable in aggregate, without any dilution of capital intensity.

Within Health Care, Biotechnology is currently the cheapest subsector on an Economic P/E of 14.6x [20] whilst Pharmaceuticals and Health Care Equipment & Services are on Economic P/Es of 18.8x and 23.3x respectively.

IT is the only other sector to have grown Economic Earnings consistently since before the crisis. Supported by rising cash conversion and steady levels of capital investment, IT also has the highest FCF yield (6.1%) of any global non-financial sector. Within IT, there is very wide dispersion of valuation, with Tech Hardware (16.4x) the cheapest subsector by a wide margin. Software & Services and Semiconductors both trade at a substantial premium to Hardware, however, with 2016E Economic P/Es at 25.3x and 23.0x respectively. This compares to global equities on 25.4x.

Industrials in aggregate are trading at 26.3x 2017E Economic P/E. The sector has seen a steady decline in profitability since 2011 (cash return in aggregate has fallen by 120 bps to an estimate of 7.2% for 2017E). Almost all of the fall has come from the Capital Goods subsector whose returns have fallen by 220bps, and is now trading at 26.8x 2017E Economic P/E.

Transportation is the most attractive subsector within Industrials on 25.8x 2017E Economic P/E. Within the subsector, Airlines is the most attractive Economic P/E on 19.3x—their cash return has more than doubled since 2013 and for the first time in over 25 years the sector is now creating value. Construction & Engineering is also trading at a discount to the Global region, with a 2017E Economic P/E of 21.9x[21].

At the other end of the spectrum, the 2017E valuation of Energy looks better on 2017E numbers, thanks to forecast improvements in profitability (from 0.4% to 1.8%)., down from 10.7% at its 2005 peak and 4% in 2014. At 0.85x Economic Price-to-Book, the sector is trading at a discount to its book value but even then the market is implying long-term cash returns would rise to levels comparable to 2014 when average crude oil prices were around twice the current level. The improvement in the sector's 2017E FCF yield to 3.4% from 1.6% reflects the concerted effort to rapidly reduce capital expenditure.

Materials has also seen a rapid build-up in assets during the commodity super-cycle. Cash return has fallen as commodity prices have normalised but at the aggregate sector level, the fall is not as significant as the Energy sector (5.8% from its peak in 2007). Materials are trading at an Economic price-to-book of 1.3x implying long-term sustainable level of earnings to be 50% above the level currently forecast for 2017. The FCF yield is 4.5% and may interest income focused investors.

Within the sector, Chemicals is trading at a discount to global equities on a 2017E Economic P/E of 24.5x. Cash returns have been remarkably steady since before the financial crisis, with 2017E forecasts at 7.2%.

Figure 63: Global Economic Sector valuation

	Economic P/E		FCF yield	
	2017E	Rank	2017E	Rank
Consumer Discretionary	26.7	4	3.4%	8
Consumer Staples	27.0	5	4.4%	5
Energy	47.8	9	3.5%	7
Health Care	19.0	1	6.0%	2
Industrials	26.3	3	4.3%	6
Information Technology	23.1	2	6.4%	1
Materials	31.8	8	4.6%	4
Telecoms	30.9	7	5.9%	3
Utilities	27.5	6	1.1%	9

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank, CROCI. The table shows aggregate data of companies in CROCI's coverage and is as on 12 December 2016.

[20] See Appendix E: Sector valuations

[21] See Appendix E: Sector valuations

Section 3

Investment Themes and Tail Risk Analysis

3. Investment themes

The journey towards a potential future of higher economic growth led by growing protectionism is unlikely to be smooth. There is some optimism currently but significant challenges remain. Investors will have to take a view on several questions, each of which could fundamentally impact future returns.

One of the most urgent is the prevailing level of interest rates. A consensus appears to be building that the interest rates have troughed not only in the US[22] but also in several other developed economies. Will economic growth over the next couple of years be strong enough to sustain a higher interest rate?

China presents another major challenge (see Section 1.5). Economic growth, heavily dependent on investments, has been slowing. Given that China alone accounts for more than a fifth of global fixed capital investment, would a rebalance of the Chinese economy mean a sharp slowdown in global fixed capital formation?

Equities are entering 2017 as an expensive asset class and would be susceptible to significant mood swings depending upon sentiment on these subjects.

Value has performed well over the past year as investors' focus has shifted back towards fundamentals possibly driven by expectations of higher economic growth. Aggressive value or low economic price-to-book companies have performed particularly strongly (Section 3.3). These companies are sensitive to the changes in economic growth expectations and the experience from Japan post Abe indicates that the trend may continue. However, investors should be aware that Aggressive Value companies typically have a higher risk profile, only justifiable when structural changes do eventually occur.

Investors that have less sanguine outlook for growth may find Defensive Value more appealing. This group comprises quality companies that have fallen out of favour or simply have been misunderstood by the market. Defensive Value tends to lag Aggressive Value in the early stages of a recovery but performs in line over the longer term.

Sector investing may remain an important theme for investors. CROCI Sectors is a rotation strategy seeking to capture value both at the sector and stock levels. The strategy has a successful decade-long track record and is currently exposed to cyclical sectors which tend to perform well in a rising growth environment (Section 3.4).

Dividend investing has also been an important theme over the past years and will continue to be an important theme given the rich market level valuations. The popularity of this theme has raised concerns over the valuations of high dividend yielding stocks. Our analysis presented on page 40 shows that there is no clear overvaluation in high yielding stocks. CROCI Global Dividends and CROCI US Dividends focus on two elements: a) high and sustainable dividend yield and; b) attractive valuation. These lead to stock selections that are significantly different to conventional high dividend yield approaches.

The following pages are arranged as follows:

3.1 Factor performance

3.2 Performance of Economic P/E

3.3 Aggressive and Defensive Value

3.4 CROCI Sectors

3.5 CROCI Global Dividends

[22] How high can rates go in the Trump Era?, Financial Times 13th December 2016https://www.ft.com/content/b5551882-c057-11e6-81c2-f57d90f6741a

3.1 Factor Performances are back at long-term trends

Before 2016, the market had been a speculative one, but a focus on fundamentals has been returning. The past couple of years have been difficult for fundamental investors. The strongest performers over the past 15 years—Value and Quality—underperformed whilst Growth, Momentum and Revisions outperformed.

History suggests that the performance of these factors is cyclical, and in 2016 we have seen a reversal in this trend, possibly on the back of a higher level of confidence over the economic outlook for the global economy. The Value factor has performed strongly across all markets. Performance was particularly strong in the US where the factor has returned 12.6% in the year to 30 November.

Three-fifths of the Value factor's return has accrued in November alone, suggesting a shift in investors' attitude after the US presidential elections. The contribution of Value in the US over the month of November was over three times the next strongest contribution.

Yield has also performed strongly across all markets in 2016. US performance was again notable: despite expectations of rising interest rates, high yield was still the fourth best performing factor in November.

Outside of the US, the International factor has also performed strongly reflecting the impact of currency changes on investors' preferences. The performance of the factor was particularly strong in Europe and in Japan, International was the fourth best performing factor in 2016.

Figure 64: 2016 factor analysis for equity markets – best and worst contributors (to 30 November 2016)

World (developed)		US		Europe		Japan		International (EAFE)	
Best performing factors									
Reversal	19.5%	Yield	15.5%	International	14.1%	Yield	15.5%	Reversal	17.7%
Yield	7.9%	Value	12.6%	Reversal	12.6%	Reversal	11.3%	Yield	9.4%
Value	6.9%	Reversal	12.6%	Yield	10.5%	Small Cap	10.2%	Value	8.6%
Worst performing factors									
Growth	-11.5%	Momentum	-15.0%	F'cast Growth	-10.4%	Growth	-11.7%	F'cast Growth	-11.0%
F'cast Growth	-10.9%	Growth	-11.2%	Low Risk	-6.8%	F'cast Growth	-9.2%	Certainty	-9.8%
Momentum	-6.1%	Historic Growth	-9.5%	Certainty	-6.1%	Revisions	-8.3%	Growth	-9.0%

Source: Deutsche Bank Quantitative Strategy Research. Data up to 30 November 2016, based on sector-neutral long-short spreads (please see Appendix A for factor definitions). Past performance is not a reliable indicator of future results.

Figure 65: Long-term factor analysis for equity markets – best and worst contributors last 15 years

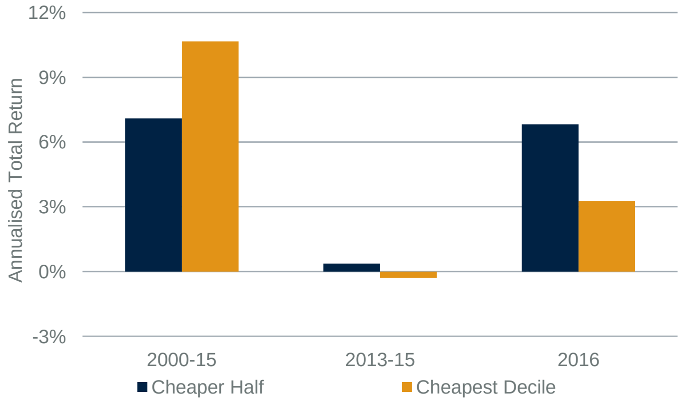
World (developed)		US		Europe		Japan		International (EAFE)	
Best performing factors									
Reversal	11.1%	Reversal	5.4%	Reversal	8.7%	Value	9.1%	Reversal	10.8%
Value	5.9%	Value	4.9%	Yield	5.5%	Yield	8.3%	Yield	6.2%
Small Cap	5.4%	Small Cap	4.5%	Revisions	5.0%	Reversal	6.8%	Value	6.0%
Worst performing factors									
Certainty	-1.6%	Growth	-3.7%	Historic Growth	-0.9%	Momentum	-4.4%	Certainty	-1.9%
F'cast Growth	-1.3%	Historic Growth	-3.2%	Growth	-0.1%	Historic Growth	-3.6%	F'cast Growth	-1.6%
Growth	-1.0%	F'cast Growth	-2.5%	F'cast Growth	-0.1%	Growth	-3.3%	Historic Growth	-0.7%

Source: Deutsche Bank Quantitative Strategy Research. Data up to 30 November 2016, based on sector-neutral long-short spreads (please see Appendix A for factor definitions). Past performance is not a reliable indicator of future results.

3.2 Economic P/E has performed strongly in 2016

Economic P/E is CROCI's principal value metric and can be used to analyse the performance of the Quality Value companies which are typically targeted by CROCI strategies. Our analysis of the performance of Economic P/E shows that lower Economic P/E baskets of stocks have significantly outperformed those with higher Economic P/E (and the broader market) since the beginning of 2000.

Figure 66: Annualised excess return of the cheaper half of the market and the cheapest decile based on Ec. P/E



Source: Deustche Bank, CROCI, Datastream and Factset Research Systems. Data as of 02 December 2016.

Both the value tail and the cheaper half of the market based on Economic P/E has consistently outperformed with only 2012, 2014 and 2015 being exceptions[23]. It is worth reflecting what led to the underperformance in certain years and what it implies for investors going into 2017.

Although there is no easy answer, the rejection of fundamentals by investors may have been driven by the state of the economy itself[24]. Economic growth was weak and investors rejected Value and Quality stocks, amid a difficult outlook for the profitability of economically sensitive stocks, whilst the scarcity of growth and extreme monetary easing pushed stocks with positive revisions and high growth expectations to very high levels of valuation.

Not much has changed on the valuation front as we enter into 2017. However, outperformance of already expensive stocks over the past couple of years has increased the dispersion in the market. Growing optimism about future economic growth has also refocused attention on fundamentals, which should ultimately drive performance over the long run. This has enabled lower Economic P/E stocks to outperform, in line with the trends of the past 16 years.

Figure 68: Median characteristics of cheapest tercile of CROCI's coverage in the Developed Markets

	Cheapest tercile
Economic P/E	22.2x
Accounting P/E	14.9x
EV / NCI	2.76x
FCF Yield	5.5%
Dividend Yield	2.5%
CROCI	12.7%
Sales Growth	1.5%
Net financial liabilities./ Market Cap	23.1%

Source: Company reports, CROCI, Deutsche Bank. The table shows median characteristics of terciles drawn from CROCI's coverage of the MSCI World Index. Data as on 08 December 2016.

Figure 67: Lowest Economic P/E deciles have generated the best performance

Performance of the CROCI coverage of the MSCI World by Economic P/E deciles between 01 January 2000 - 30 November 2016

	Lowest Economic P/E									Highest Economic P/E
Deciles	1	2	3	4	5	6	7	8	9	10
Annualized net total return	13.2%	11.1%	9.8%	7.8%	7.8%	5.2%	5.7%	6.3%	3.3%	2.1%
Volatility	16.2%	15.7%	15.2%	15.3%	14.7%	14.6%	14.0%	14.6%	16.2%	19.5%
Sharpe ratio	0.70	0.59	0.53	0.39	0.41	0.23	0.28	0.30	0.09	0.01

Source: Deustche Bank, CROCI, Datastream and Factset Research Systems. Data as of 02 December 2016.
Deciles are constructed from the CROCI coverage of the MSCI World Index. Annualized total return shows the compounded annual growth rate (CAGR) of each Economic P/E decile between 01 Jan 2000 and 30 November 2015. Volatility shows the annualized standard deviations of daily log returns over this period. **Performance is historical and does not guarantee future results.**

[23] *The Performance of Economic Value*, CROCI Focus May 2015
[24] *CROCI Outlook 2016*, Section 3

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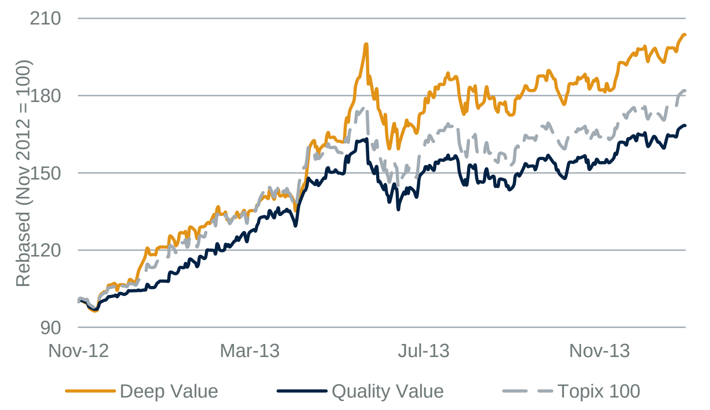
3.3 Aggressive Value: highly sensitive to economic growth expectations

Aggressive Value companies, defined as companies on low price-to-book ratios, are typically highly sensitive to changes in economic growth expectations. This sensitivity to economic growth is normally a result of their low profitability. As the market believes that the assets are non-productive, it will put a discount on the assets. However, as expectations of economic growth pick-up, the market starts to re-price the ability of the assets to generate profits.

Japan provides an interesting case study. Just before the 2012 general elections, markets started to price in higher growth as a result of the economic reforms that Prime Minister Shinzo Abe proposed in his election manifesto. The Topix 100 Index returned 11.5% between 14 November and 16 December; the date of the general election. Over this same period, a basket of 40 Aggressive Value Japanese stocks [25] returned 17.1%. This strong performance continued: over the next twelve months this basket of stocks [26] returned 96.2%, outperforming the benchmark index by 22.5%.

Figure 69: Aggressive value and defensive value in Japan



Source: Deutsche Bank, CROCI, Bloomberg Finance L.P. Period 01 November 2012 to 31 December 2013. Data as on 30 November 2016.

Expectations of higher economic growth have led to a similar outperformance of Aggressive Value stocks in the US. This year (up to the end of November), a basket of 40 Aggressive Value US stocks (constructed using a similar approach to Japan) has returned 36.4%, outperforming the S&P 500 Index by 27%. The outperformance in November just since the US presidential election was 5.4%.

Expectations of higher US growth have led to a rerating of European Aggressive Value stocks as well. Over 2016, CROCI's Aggressive Value basket had outperformed the STOXX 600 index by 24.1% by 30 November.

Aggressive Value stocks are generally lower quality

The performance of Aggressive Value comes with its share of risk. The stocks that make up Aggressive Value portfolios are generally low quality. Figure 70 shows the median financial leverage of this group is almost twice as that of the market, whilst their return on capital is practically zero. This low profitability is typically associated with high levels of capital investment. If restructuring and / or operational success were able to turn the profitability of these companies around then they could easily become phenomenal investments. However, investors should be aware that the risks are structurally higher.

Figure 70: Median characteristics of Global Aggressive Value and Defensive Value

FY1	Aggressive Value	Defensive Value	Global
Economic P/E	67.5x	15.6x	29.3x
Accounting P/E	21.2x	12.1x	18.5x
Economic Price-to-Book	0.47x	2.02x	1.94x
FCF yield	5.6%	7.3%	4.6%
Dividend Yield	2.4%	2.8%	2.3%
CROCI	0.6%	14.4%	7.2%
Sales growth	-6.0%	2.6%	0.8%
Total fin. Lev./market cap	47.4%	2.9%	28.3%

Source: Company reports, CROCI, Deutsche Bank. The table shows median characteristics of Global baskets. Data as on 06 December 2016.

Figure 71: 2016 performance of regional baskets

Up to 30 November	Aggressive Value	Defensive Value
Global	46.0%	-2.2%
US	27.0%	5.5%
Europe	24.1%	1.2%
Japan	2.9%	-2.1%

Source: Deutsche Bank, CROCI, Factset Research Systems. The benchmarks used for the relative performance are: Global—MSCI World; US—S&P 500; Europe—STOXX 600; Japan—TOPIX 100. The performance data is up to 30 November 2016. Past performance is not a reliable indicator for future results..

[25] selected from CROCI's coverage using Economic price-to-book ratios

[26] Rebalanced monthly

Past performance may not be a reliable indicator of future performance. Forward looking statements or projections are subject to risks and uncertainties that may cause actual results to differ materially. See page 2 for important information.

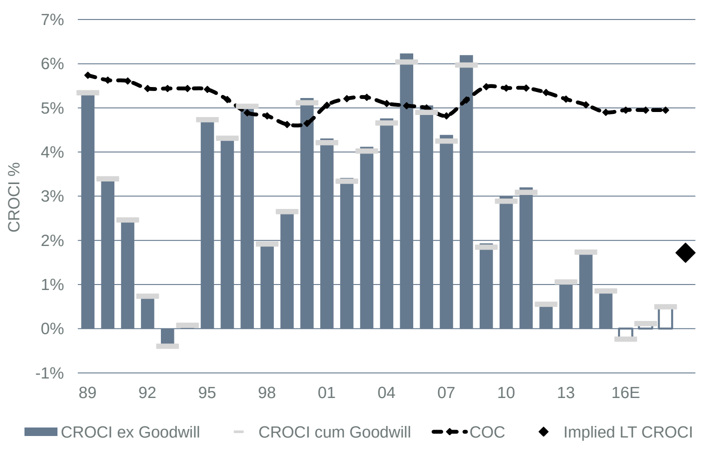
Defensive Value performs as strongly as Aggressive Value over the longer term

Investors with a lower tolerance for risk or those with a less sanguine outlook for economic recovery may find companies at the other end of the value spectrum more appealing. These are generally quality companies that have fallen out of favour for cyclical or other reasons. Figure 70 shows the median characteristics of our Defensive Value basket selected using Economic P/E after removing:

- the bottom tercile of companies by cash returns;
- the top tercile of companies by financial leverage and;
- the top tercile of companies by 12 month daily volatility

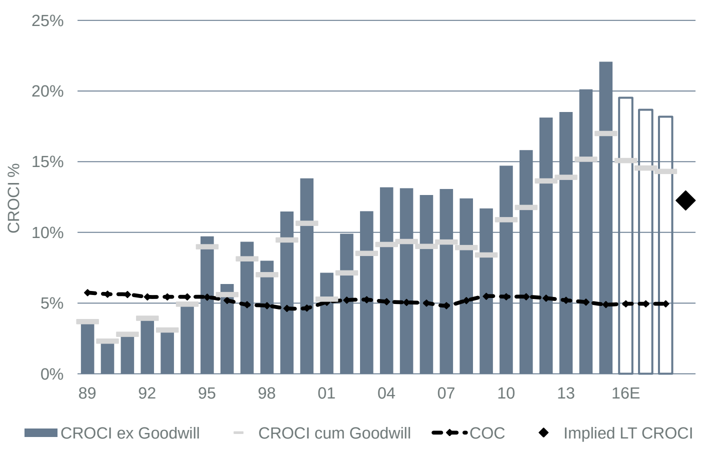
Defensive Value tends to perform less strongly than Aggressive Value in early stages. However, its performance is less volatile, but over the medium term returns as much as Aggressive Value.

Figure 72: Global Aggressive Value: Aggregate cash returns



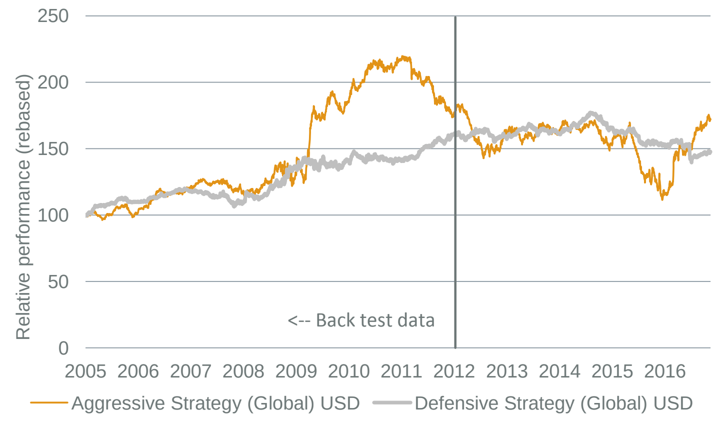
Source: Deutsche Bank, CROCI. The chart shows aggregate cash returns of Global Aggressive Value basket. Data as on 15 November 2016.

Figure 73: Global Defensive Value: Aggregate cash returns



Source: Deutsche Bank, CROCI. The chart shows aggregate cash return s of Global Defensive Value basket. Data as on 15 November 2016.

Figure 74: Long term performance – Global Aggressive Value and Defensive Value



Source: Deutsche Bank, CROCI. The chart shows performance of Global Aggressive and Defensive Value baskets relative to the MSCI World Index. Periods of rising returns show the strategy is outperforming the benchmark and vice-versa. Paper versions of these strategies have been rebalanced monthly and run as if they were live portfolios since January 2012. Data before that is simulated and is derived from retroactive application of the model. Performance data shown here is purely for academic purposes. Past performance may not be representative of future results. Data as on 15 November 2016.

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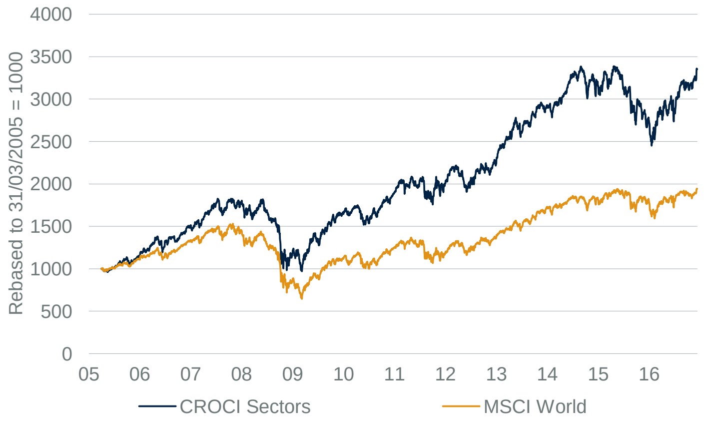
3.4 CROCI Sectors: capturing value at sector and stock levels

Sector investing was an important theme for investors over 2016. Significant differences in sector performances emerged, as investors' preferences changed over the course of the year led by changing growth expectations. Commodity and defensive sectors performed strongly in the first half, driven by higher commodity prices coinciding with a more sanguine outlook for Chinese economic growth. More cyclical sectors took their place in the second half, as attention shifted towards value and higher US economic growth.

CROCI Sectors performed strongly both in 2016 and long-term. CROCI Sectors is a rotation strategy seeking to capture value at both sector and stock levels. It does so by looking at three cheapest GICS sectors and selects 10 most attractive stocks in each sector based on CROCI's assessment of Real Value.

The CROCI Sectors strategy performed strongly in this environment. The US dollar version of the strategy generated 18.1% total return in 2016 (up to 30 November), outperforming the MSCI World index by 13.1%. Since its launch in March 2005, the strategy has outperformed the index by an annualised 4.4%.

Figure 75: Performance of the CROCI Sectors Strategy



Source: Deutsche Bank, CROCI, Factset Research Systems. The chart shows performance of CROCI Sector Strategy and the MSCI World Index. Period between 31 March 2005 and 12 December 2016. Data as of 13 December 2016. Past performance is not a reliable indicator for future returns.

Both sector allocation and stock selection contributed to performance. Brinson attribution of the CROCI Sector strategy's performance in 2016 shows that outperformance came through both sector allocation and stock selection. The former was particularly strong in 2016, generating almost two-thirds of the total outperformance. Currency exposure was a drag and resulted in a negative contribution of 59 bps.

CROCI Sectors is currently exposed to cyclical sectors. The sectors strategy is currently invested in Consumer Discretionary, Industrials and Information Technology sectors. These cyclical sectors tend to perform well in a rising economic growth environment. This bodes well for the future performance of the strategy if the current optimism for higher economic growth continues. It's worth noting that the strategy has historically invested in different sectors based on their relative value with no one single sector dominating the composition of the strategy.

Figure 76: Brinson attribution of the performance of the CROCI Sectors Strategy in 2016

2016 up to 30 November	YTD
CROCI Sectors Strategy	18.6%
Excess returns rel to the MSCI World	13.0%
Sector allocation	9.5%
Stock selection	4.1%
Currency	-0.6%

Source: CROCI, Deutsche Bank and MSCI Barra. The table shows net total return and Brinson attribution of performance of the CROCI Sectors strategy in 2016 (up to 30 November). Past performance is not a reliable indicator for future returns. Data as on 12 December 2016.

Figure 77: Sector exposure of the CROCI Sectors Strategy

Past 10 years	Average	Max
Consumer Discretionary	3%	33%
Consumer Staples	5%	33%
Energy	26%	33%
Health Care	30%	37%
Industrials	10%	33%
IT	15%	33%
Materials	6%	33%
Telecom.	1%	20%
Utilities	4%	33%

Source: Deutsche Bank, CROCI. Data as on 7 December 2016.

Past performance may not be a reliable indicator of future performance. Forward looking statements or projections are subject to risks and uncertainties that may cause actual results to differ materially. See page 2 for important information.

3.5 CROCI Dividends: Undemanding valuation

A dearth of economic growth along with rich market level valuations has made dividends an attractive theme for investors. High dividend yielding stocks have been popular not only with equity investors but also conventional fixed income investors who have been forced to consider equities because of a lack of yield in their asset classes. And high yield stocks have performed strongly. Last year, in the US and Japan, high yield was the best performing market factor out of 17 tracked by DB's Quantitative Research team. In Europe, where currency also had a major influence on performance, high yield has ranked third on performance.

No clear overvaluation at companies with high dividend yield. This strong performance of high yielding stocks has raised concerns about their valuation. In order to understand the valuation of these higher yielding stocks, we have divided our global universe into quartiles based simply on their 2017 dividend yield. The following points emerge from our analysis:

- At the global level and in the US, the highest yielding quartile of stocks is at the same Economic P/E as that of the market based on median data.
- In Europe, the highest yielding quartile is at a slight premium to the market. However, in Japan, the highest yielding quartile is at a discount.

Figure 78: Median 2017E Economic P/E of quartiles drawn using dividend yield

Quartile	Global	US	Europe	Japan
1 (Lowest yield)	28.5	28.6	27.0	29.9
2	26.6	26.0	27.0	25.7
3	26.3	27.7	26.2	24.2
4 (Highest yield)	27.1	27.5	28.0	23.4
Region	27.1	27.5	27.0	26.0

Source: Deutsche Bank, CROCI. The table shows median 2017 Economic P/E of quartiles drawn from CROCI database using 2017E dividend yield. Data as on 09 December 2016.

CROCI's approach to a dividend yield strategy focuses on lower risk sustainable dividends with attractive Economic P/E ratio.

The difficulty with the highest dividend yielding stocks is that they can often have associated operational problems. So instead of targeting the highest dividend yielding stocks, CROCI's approach aims to select stocks on low Economic P/Es that provide above-average dividend yields, whilst also removing the risks associated with high financial gearing, low profitability and volatility. In particular, the approach focuses on the following:

- Dividend yield: must be greater than the market median
- CROCI cash returns: companies with low cash returns are removed in order to reduce operational risk; if a company cannot generate a return on its capital then it is unlikely to be able to sustain a dividend;
- Financial leverage: High financial leverage may not always be a problem but in certain situations can endanger dividends. CROCI seeks to reduce this financial risk by removing most financially leveraged companies from selection.
- Volatility: Volatility higher than the market's can suggest fears around sustainable levels of long-term profitability. CROCI seeks to reduce this market risk by excluding companies with high share price volatility.

Figure 79: Operational characteristics of highest dividend yield quartile (Median)

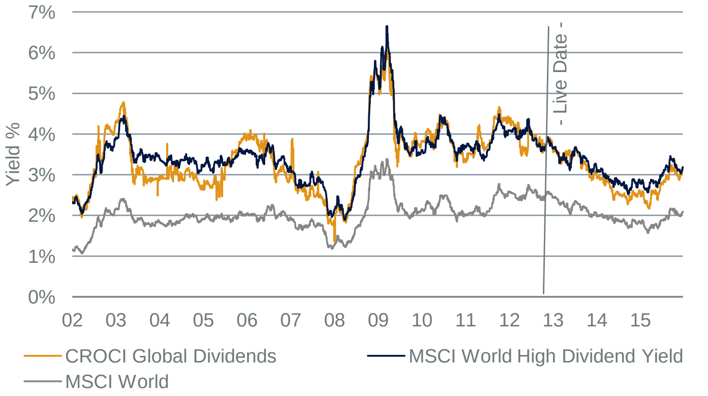
2017E	Sales Growth	CROCI	EBITDA Margin	FCF to Sales	260d Volatility
Global					
4th Quartile	2.0%	5.3%	20.9%	7.1%	25.8%
Region	3.3%	7.6%	18.7%	8.3%	28.1%
US					
4th Quartile	1.8%	5.3%	28.9%	8.0%	22.8%
Region	3.4%	12.1%	22.7%	10.3%	25.1%
Europe					
4th Quartile	1.4%	4.6%	18.1%	7.1%	27.3%
Region	3.4%	8.2%	18.1%	8.5%	27.9%
Japan					
4th Quartile	2.1%	2.9%	14.6%	2.1%	32.6%
Region	2.5%	3.7%	14.3%	3.6%	34.2%

Source: Deutsche Bank, CROCI. The table shows operational characteristics of highest dividend yield quartiles. Globally and in the US. The quartiles are drawn from companies in CROCI coverage. Data as on 09 December 2016.

CROCI's focus on sustainability has not compromised yield

CROCIs' focus on dividend sustainability and value has historically not compromised the yield. Since 2002, dividend yield of the CROCI Global Dividends strategy has been similar to the MSCI World High Dividend yield Index.

Figure 80: Trailing 12 months dividend yield



Source: Deutsche Bank, CROCI. Data as on 8 December 2016.

Figure 81: Sector exposure of CROCI Global Dividends

	CROCI Global Dividends	Relative Weight vs. HY benchmark
Consumer Discretionary	20.8%	12.6%
Consumer Staples	5.7%	-11.5%
Energy	2.8%	-8.8%
Financials	0.0%	-10.2%
Health Care	19.2%	5.8%
Industrials	20.2%	10.5%
Information Technology	19.9%	10.5%
Materials	6.9%	1.0%
Real Estate	0.0%	-1.0%
Telecommunication Services	1.3%	-4.3%
Utilities	3.2%	-4.6%

Source: CROCI, Deutsche Bank and MSCI. Data as on 7 December 2016.

Dividends remain an important contributor to equity returns

Over the past 15 years, a third of equity total return has come in the form of dividends with price appreciation accounting for the remainder. The latter has been particularly strong over the recent years as higher liquidity from unconventional monetary policies has increased risk appetite thereby pushing market valuations to their highest in over a decade (see page 25). In a low return environment, their importance is clearly even greater.

Performance of CROCI Dividends

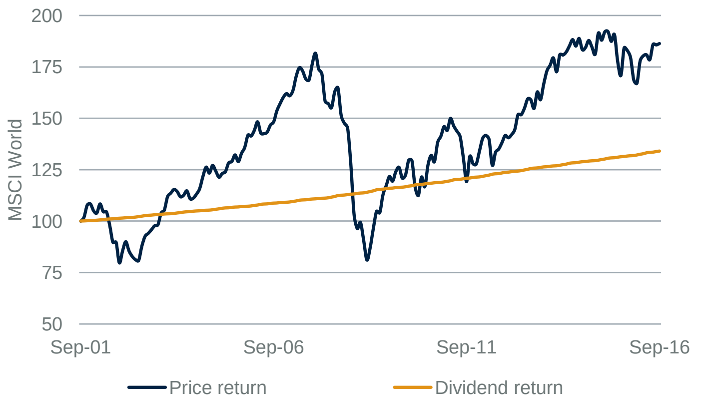
CROCI Global Dividends Strategy performed strongly in 2016. It has outperformed both the MSCI World and the MSCI World High Dividend Yield indices. The strategy has underperformed the MSCI World Index over the past 3 years but has still managed to outperform the MSCI World High Dividend Yield Index. Over the past decade, a simulated portfolio would have outperformed both benchmarks.

Figure 82: Performance of CROCI Global Dividends

	Annualised				
	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
CROCI Global Dividends	12.5%	9.6%	3.3%	9.3%	7.8%
MSCI World High Dividend Yield	6.9%	5.7%	2.9%	8.1%	2.8%
MSCI World	6.0%	4.1%	4.4%	9.9%	3.8%
Excess Return vs. MSCI World High Dividend Yield	5.6%	3.9%	0.5%	1.3%	4.9%
Excess Return vs. MSCI World	6.5%	5.5%	-1.0%	-0.6%	4.0%

Source: Deutsche Bank, CROCI. Data as on 8 December 2016. CROCI Global Dividends has a live track record from 15 March 2012. The performance data before this date is simulated and is derived from a retroactive application of the strategy model. The past performance is not a reliable indicator of future results.

Figure 83: MSCI World price returns vs. dividend returns



Source: Deutsche Bank, CROCI, MSCI and Bloomberg Finance L.P. The chart shows dividend and price contribution to the returns of MSCI World Index. Period 30 Sep 2001 till 30 Sep 2016. Data as on 20 Oct 2016.

Past performance may not be a reliable indicator of future performance. Forward looking statements or projections are subject to risks and uncertainties that may cause actual results to differ materially. See page 2 for important information.

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Markets and Sectors

Figure 84: Global Sector Valuation 2017

		EV/NCI	CROCI	Ec PE
Consumer Discretionary (12.4% weight in MSCI World)	Current	**1.83x**	6.8%	26.8x
	5Y	1.76x	7.1%	25.9x
	10Y	1.57x	6.0%	30.2x
	20Y	1.54x	6.0%	30.7x
Consumer Staples (9.7%)	Current	**3.24x**	11.9%	27.2x
	5Y	3.05x	11.6%	28.0x
	10Y	2.75x	11.6%	28.0x
	20Y	2.71x	11.2%	28.9x
Energy (7.3%)	Current	**0.87x**	1.8%	49.0x
	5Y	0.85x	3.1%	27.8x
	10Y	1.06x	5.1%	17.0x
	20Y	1.23x	5.6%	15.6x
Financials* (18.1%)	Current	**1.19x**	9.6%	12.3x
	5Y	1.27x	10.3%	11.5x
	10Y	1.49x	9.5%	12.5x
	19Y	2.11x	13.1%	9.1x
Health Care (11.9%)	Current	**3.07x**	15.9%	19.3x
	5Y	3.06x	15.0%	20.5x
	10Y	2.63x	15.1%	20.4x
	20Y	3.01x	14.6%	21.0x
Industrials (11.2%)	Current	**1.90x**	7.2%	26.4x
	5Y	1.80x	7.5%	25.2x
	10Y	1.74x	7.7%	24.7x
	20Y	1.71x	7.0%	27.3x
Information Technology (14.6%)	Current	**3.58x**	15.3%	23.3x
	5Y	3.25x	16.5%	21.7x
	10Y	2.95x	15.0%	23.8x
	20Y	3.26x	12.7%	28.1x
Materials (5.1%)	Current	**1.33x**	4.2%	31.4x
	5Y	1.31x	4.8%	27.4x
	10Y	1.40x	6.2%	21.5x
	20Y	1.28x	5.8%	23.0x
Telecoms (3.3%)	Current	**1.21x**	3.9%	31.2x
	5Y	1.21x	4.2%	28.8x
	10Y	1.22x	4.8%	24.9x
	20Y	1.48x	5.5%	21.8x
Utilities (3.2%)	Current	**0.88x**	3.2%	27.7x
	5Y	0.89x	3.5%	24.9x
	10Y	0.91x	3.7%	23.5x
	20Y	0.87x	3.8%	23.0x

COC	4.95%
Banks COE	7.09%

Glossary:

EV/NCI: An economically adjusted measure of the price-to-book. Similar to Tobin's Q, this is a ratio of market value of assets to replacement value of assets. An EV/NCI greater than 1 implies that the market expects value creation (in equilibrium, EV/NCI = CROCI/COC).

* Financials: The Financial sector excludes Insurance, but includes Banks and Diversified Financials. Note that the PE of Financials is not comparable to Industrials as we estimate that they have a different Cost of Equity due to the higher leverage. Numbers in brackets are risk adjusted Economic PE.

Source: Deutsche Bank. Data as on 14 December 2016

Figure 85: Regional Sector Valuation

2017		US	Europe	Japan	A-Pac	GEMs	Value
Consumer Discretionary	EV/NCI	2.75	1.59	0.86	0.85	0.80	A-Pac
	CROCI	9.4%	6.1%	3.8%	5.4%	4.9%	
	Ec PE	29.4	26.3	23.0	15.9	16.3	
Cons. Staples	EV/NCI	3.61	3.42	1.72	2.22	3.39	Japan
	CROCI	13.3%	11.9%	7.0%	7.7%	13.5%	
	Ec PE	27.2	28.8	24.7	29.0	25.1	
Energy	EV/NCI	1.29	0.80	0.65	0.83	0.60	A-Pac
	CROCI	1.6%	1.5%	1.8%	3.1%	1.7%	
	Ec PE‡	81.9	51.4	36.3	26.6	34.7	
Financials*	P/B	1.55	1.06	0.78	0.98	0.81	GEMs
	Inf. Adj. ROC	9.8%	7.2%	6.4%	12.6%	12.2%	
	PE	15.8	14.9	12.3	7.7	6.6	
	PE (risk adj)†	22.6	21.3	17.6	11.0	9.5	
Health Care	EV/NCI	3.67	2.60	1.33	3.88	1.53	US
	CROCI	19.4%	13.2%	4.5%	15.9%	6.9%	
	Ec PE	18.9	19.7	29.3	24.3	22.3	
Industrials	EV/NCI	2.83	1.97	1.07	1.09	1.06	GEMs
	CROCI	10.1%	7.9%	4.1%	4.2%	4.3%	
	Ec PE	27.9	25.0	26.0	26.2	24.8	
Information Technology	EV/NCI	5.44	3.28	1.04	1.70	1.71	A-Pac
	CROCI	24.0%	12.4%	3.1%	7.8%	7.7%	
	Ec PE	22.7	26.6	33.8	22.0	22.0	
Materials	EV/NCI	2.01	1.35	0.69	1.15	0.99	A-Pac
	CROCI	7.2%	4.8%	1.5%	4.2%	2.0%	
	Ec PE	27.9	28.2	44.8	27.5	49.3	
Telecoms	EV/NCI	1.37	1.22	1.05	1.08	1.08	A-Pac
	CROCI	4.2%	2.7%	3.2%	3.8%	3.0%	
	Ec PE	32.5	44.9	32.6	28.1	36.5	
Utilities	EV/NCI	1.00	0.94	0.68	0.73	0.55	GEMs
	CROCI	3.4%	3.4%	1.2%	4.7%	3.8%	
	Ec PE	29.7	27.7	54.2	15.3	14.3	

Source: Deutsche Bank. Data as on 14 December 2016

* Financials: Asia Pacific Financials primarily represents Chinese and Australian Banks; GEMs Financials primarily represents Chinese and South African banks.
† Reflects accounting PE adjusted for relative differential in cost of capital.
‡ Japan Energy Sector consists of one company – JX Holdings

Figure 86: Regional Valuations

		2016E	2017E	2018E
USA	Sales Growth	0.7%	4.4%	4.4%
	CROCI	9.6%	10.2%	10.5%
	EV/FCF	25.2	21.7	19.1
	Economic PE	27.7	25.1	22.8
	Accounting PE	20.9	18.8	17.2
Europe	Sales Growth	-4.2%	5.5%	3.5%
	CROCI	5.2%	5.8%	6.2%
	EV/FCF	28.1	22.2	19.2
	Economic PE	31.8	27.6	25.0
	Accounting PE	19.0	16.4	14.8
Japan	Sales Growth	-6.0%	2.4%	2.4%
	CROCI	3.2%	3.3%	3.4%
	EV/FCF	22.8	28.8	24.3
	Economic PE	31.8	29.1	27.0
	Accounting PE	16.9	15.2	13.9
GEMs	Sales Growth	-6.9%	3.7%	5.5%
	CROCI	3.5%	4.0%	3.8%
	EV/FCF	23.7	19.3	16.1
	Economic PE	27.1	23.2	23.3
	Accounting PE	16.7	14.6	13.2

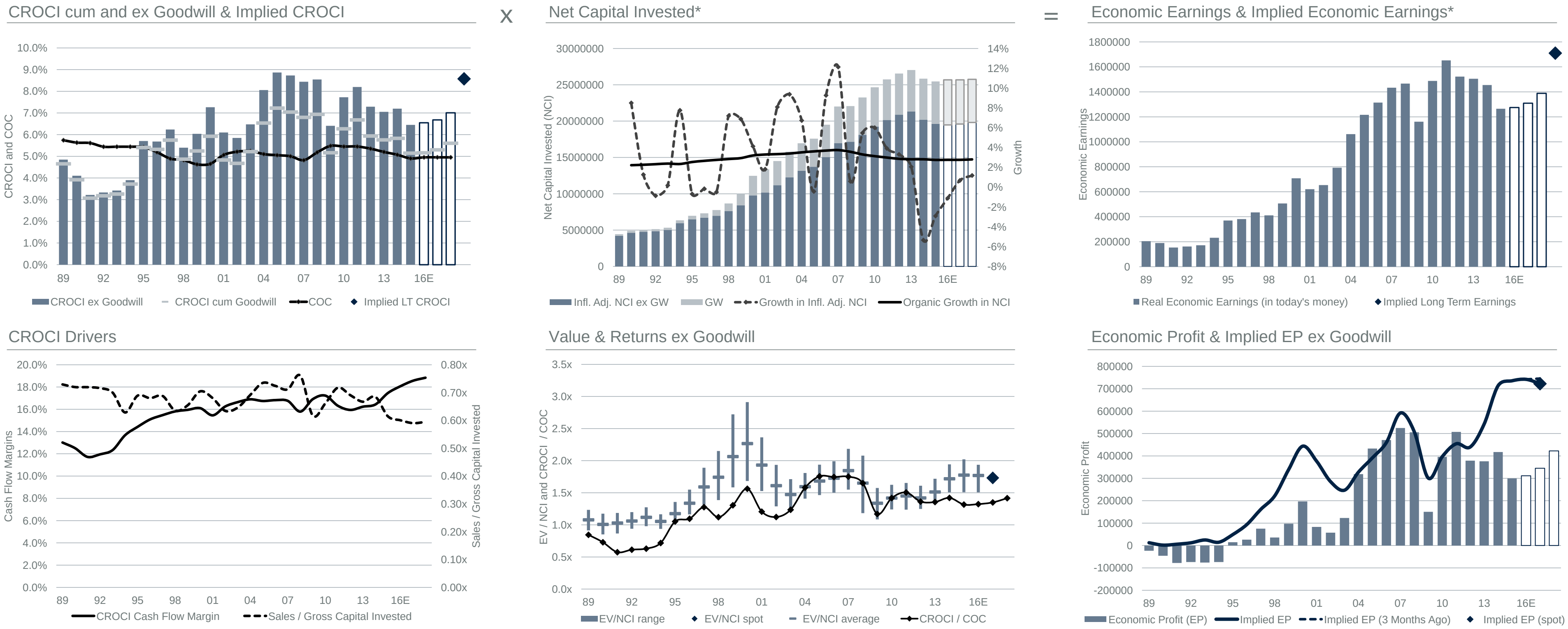
Source: Deutsche Bank. Data as on 14 December 2016

Figure 87: Benchmark Indices Valuation

2017	Acct. PE	Ec. PE	Div. Yield	FCF Yield	EV/NCI	CROCI	CROCI	CROCI	NCI Growth	Earnings Growth	Market Cap/EV
	2017E	2017E	2017E	2017E	2017E	2017E	5YA	Implied	2007-16E	2007-16E	2017E
Benchmarks											
MSCI The World Index	17.5	26.0	2.5%	4.5%	1.7	6.7%	7.0%	8.6%	17.1%	-7.0%	80.4%
DJ Global Titans	16.3	23.3	3.3%	5.5%	1.8	7.6%	8.5%	8.8%	13.9%	-17.9%	90.1%
S&P 500	18.9	25.2	2.2%	4.5%	2.6	10.1%	10.1%	12.7%	35.8%	26.1%	85.4%
NASDAQ-100 Index	19.8	23.1	1.3%	5.6%	4.9	21.3%	22.4%	24.3%	111.6%	139.5%	100.7%
SOX Semiconductor	16.2	24.1	2.5%	6.2%	3.0	12.3%	13.4%	14.7%	97.9%	93.0%	104.9%
DJ Industrial Average	17.8	23.9	2.8%	5.6%	2.7	11.2%	11.9%	13.3%	26.4%	8.3%	94.2%
TOPIX 100	14.9	25.2	2.2%	3.5%	1.0	3.9%	4.1%	4.9%	39.7%	-20.4%	79.8%
STOXX 600	16.7	27.7	3.3%	4.5%	1.6	5.8%	5.9%	7.9%	30.4%	-14.2%	71.1%
Euro STOXX	16.2	28.7	2.9%	4.1%	1.5	5.3%	5.2%	7.6%	20.0%	-13.8%	66.0%
Germany DAX	14.3	25.9	2.7%	3.8%	1.5	5.6%	5.4%	7.2%	25.4%	17.4%	60.6%
France CAC 40	15.6	26.0	3.2%	4.6%	1.5	5.6%	5.3%	7.2%	19.7%	-25.9%	77.1%
FTSE 100	16.5	27.5	4.1%	5.0%	1.6	5.9%	6.2%	8.0%	48.4%	-24.1%	68.4%
Switzerland SMI	18.0	22.4	3.5%	5.1%	2.5	11.2%	11.8%	12.4%	17.0%	-9.1%	92.2%
South Africa JSE Top 40	16.4	23.5	2.9%	6.8%	1.0	4.3%	6.2%	4.9%	75.3%	-51.7%	75.4%
Korea KOSPI 100	8.7	15.4	1.9%	6.8%	0.6	4.2%	4.7%	3.2%	59.1%	17.2%	84.1%
Mexico IPC	20.3	31.4	2.1%	4.6%	1.8	5.6%	7.2%	8.7%	116.3%	-19.0%	68.8%
Russia MICEX	6.0	-220.9	6.0%	0.7%	0.3	-0.1%	0.5%	1.3%	63.3%	-103.8%	67.1%
China	18.4	28.1	2.1%	5.0%	1.0	3.7%	4.3%	5.2%	119.1%	-36.4%	73.5%
MSCI Emerging Markets	14.5	26.4	2.6%	5.2%	0.9	3.6%	4.7%	4.6%	29.8%	-48.5%	80.0%

Source: Deutsche Bank: represents a bottom up aggregation of the CROCI coverage of the stated benchmark. Data as on 14 November 2016.

Figure 88: Global Equities CROCI



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Enterprise Value (USD bn)	10770	14222	17063	15426	14424	14661	17201	19095	21834	26782	24837	21737	24663	26800	27763	30747	33660	34366	34461	34544	33834
Market Cap (USD bn)	8956	12167	14411	12426	10836	11047	13534	15369	17874	22168	19040	15859	18883	20582	21173	24211	26965	27466	27250	27672	27654
EV/NCI Ex. GW	1.74x	2.06x	2.27x	1.93x	1.61x	1.47x	1.60x	1.68x	1.73x	1.85x	1.65x	1.34x	1.42x	1.45x	1.42x	1.51x	1.72x	1.78x	1.77x	1.73x	1.65x
Economic PE	32.3x	34.2x	31.2x	31.7x	27.6x	22.8x	19.8x	19.0x	19.8x	21.9x	19.3x	20.9x	18.4x	17.7x	19.5x	21.5x	23.9x	27.5x	27.0x	25.9x	23.5x
Accounting PE	26.9x	30.6x	26.7x	27.6x	21.3x	16.6x	15.2x	15.1x	15.4x	16.6x	15.4x	15.4x	13.1x	12.8x	13.6x	15.3x	17.0x	19.2x	19.0x	17.4x	15.9x
Cost of Capital	4.82%	4.63%	4.65%	5.06%	5.21%	5.24%	5.10%	5.05%	5.00%	4.82%	5.18%	5.48%	5.45%	5.45%	5.35%	5.20%	5.07%	4.90%	4.95%	4.95%	4.95%
CROCI Ex. GW	5.4%	6.0%	7.3%	6.1%	5.8%	6.5%	8.1%	8.9%	8.7%	8.4%	8.5%	6.4%	7.7%	8.2%	7.3%	7.1%	7.2%	6.4%	6.5%	6.7%	7.0%
Implied CROCI	8.4%	9.5%	10.5%	9.8%	8.4%	7.7%	8.1%	8.5%	8.6%	8.9%	8.6%	7.3%	7.7%	7.9%	7.6%	7.9%	8.7%	8.7%	8.8%	8.6%	8.2%
Implied Economic Earnings/ Economic Earnings	156%	158%	145%	160%	144%	119%	101%	96%	99%	105%	100%	114%	100%	96%	104%	112%	121%	135%	134%	128%	116%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of companies in CROCI's global coverage. Data in USD and is as on 19 December 2016.

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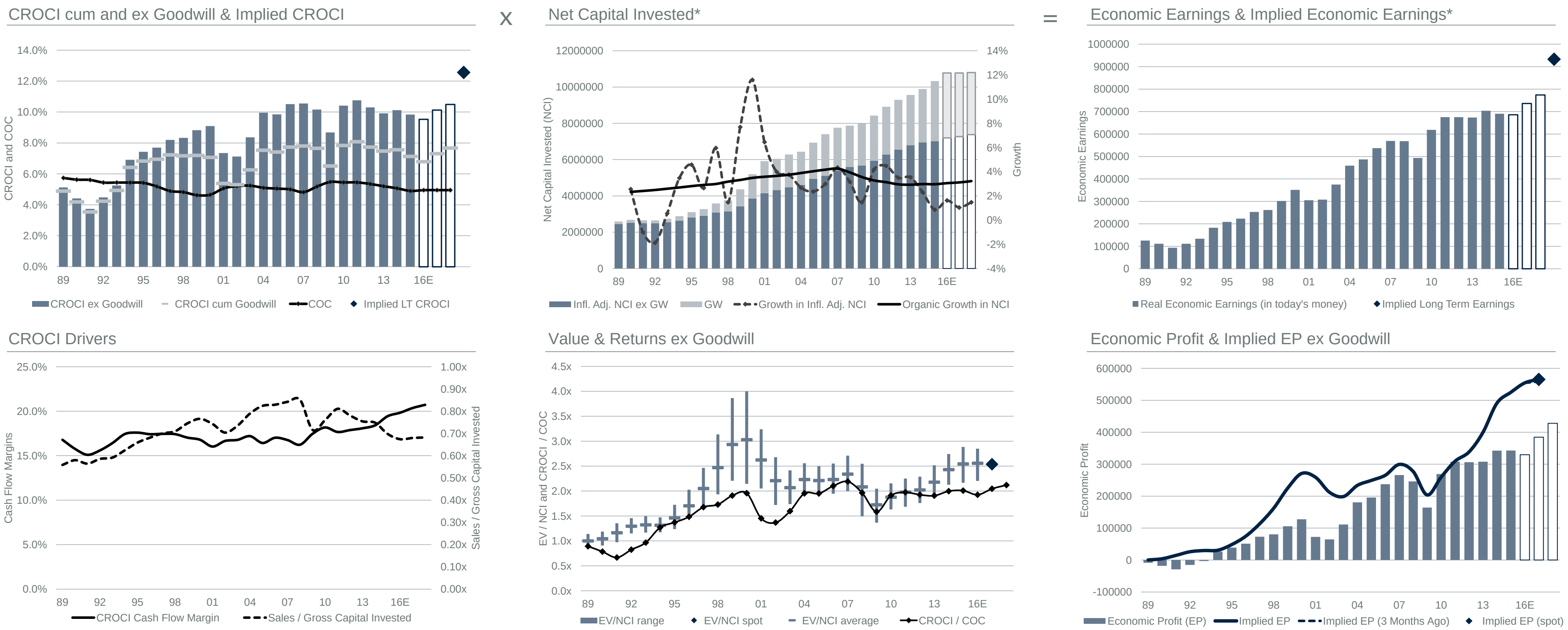
Figure 89: US Equities CROCI



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Enterprise Value (USD bn)	5647	7370	8696	8270	7436	7340	8299	9008	9614	10843	10283	8839	10180	11472	12509	14210	16460	17658	18400	18851	18418
Market Cap (USD bn)	5012	6771	7842	7118	6023	5986	7034	7659	8306	9450	8390	6993	8427	9446	10370	12158	14151	14975	15306	16013	16014
EV/NCI Ex. GW	2.47x	2.93x	3.03x	2.62x	2.21x	2.07x	2.23x	2.21x	2.23x	2.34x	2.08x	1.73x	1.88x	1.98x	2.02x	2.18x	2.43x	2.54x	2.56x	2.54x	2.39x
Economic PE	29.6x	33.2x	33.3x	35.7x	31.0x	24.7x	22.4x	22.4x	21.2x	22.2x	20.5x	19.9x	18.0x	18.4x	19.6x	22.0x	24.0x	25.9x	26.8x	25.1x	22.7x
Accounting PE	26.5x	30.2x	29.0x	29.3x	24.2x	19.9x	18.0x	17.8x	16.9x	17.3x	15.6x	16.0x	14.0x	13.4x	14.3x	16.5x	18.1x	20.0x	20.2x	18.8x	17.2x
Cost of Capital	4.82%	4.63%	4.65%	5.06%	5.21%	5.24%	5.10%	5.05%	5.00%	4.82%	5.18%	5.48%	5.45%	5.45%	5.35%	5.20%	5.07%	4.90%	4.95%	4.95%	4.95%
CROCI Ex. GW	8.3%	8.8%	9.1%	7.4%	7.1%	8.4%	10.0%	9.9%	10.5%	10.6%	10.2%	8.7%	10.4%	10.8%	10.3%	9.9%	10.1%	9.8%	9.5%	10.1%	10.5%
Implied CROCI	11.9%	13.6%	14.1%	13.3%	11.5%	10.8%	11.4%	11.2%	11.2%	11.3%	10.8%	9.5%	10.2%	10.8%	10.8%	11.3%	12.3%	12.5%	12.7%	12.6%	11.8%
Implied Economic Earnings/ Economic Earnings	143%	154%	155%	181%	161%	129%	114%	113%	106%	107%	106%	109%	98%	100%	105%	114%	122%	127%	133%	124%	113%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of companies covered by the CROCI team in the US. Data in USD and is as on 19 December 2016.

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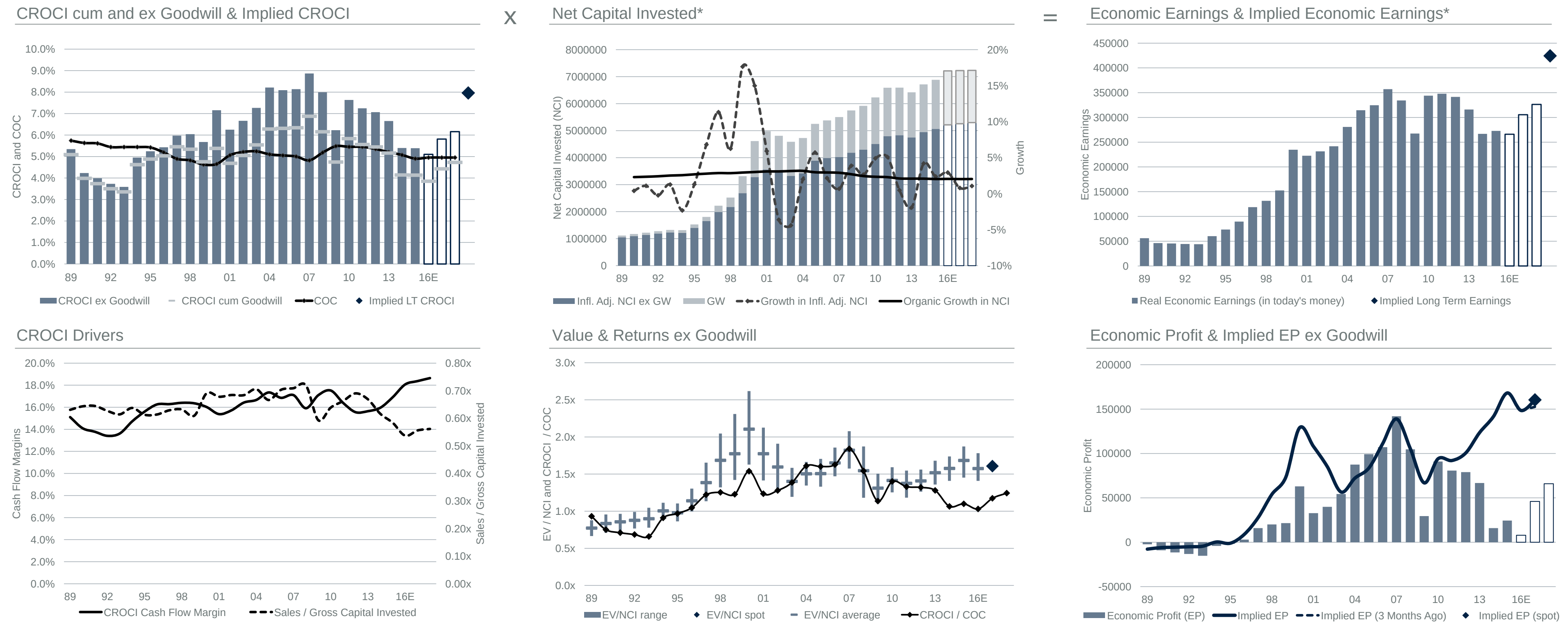
Figure 90: Europe Equities CROCI



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Enterprise Value (EUR bn)	2752	3622	5285	4891	4379	3763	4227	4917	5633	6391	5762	5142	5885	6181	6478	6953	7631	8451	8215	8574	8437
Market Cap (EUR bn)	2307	2990	4337	3735	3106	2617	3095	3648	4258	4887	3911	3245	3985	4178	4384	4938	5492	6182	5826	6098	6086
EV/NCI Ex. GW	1.69x	1.77x	2.11x	1.78x	1.60x	1.40x	1.50x	1.51x	1.65x	1.82x	1.55x	1.31x	1.41x	1.38x	1.41x	1.52x	1.58x	1.68x	1.58x	1.61x	1.55x
Economic PE	27.9x	31.2x	29.4x	28.4x	24.0x	19.3x	18.3x	18.6x	20.3x	20.5x	19.4x	21.0x	18.5x	19.0x	19.9x	22.8x	29.2x	31.3x	30.9x	27.7x	25.1x
Accounting PE	24.2x	26.8x	24.3x	24.9x	19.8x	14.2x	13.6x	13.3x	14.3x	14.9x	13.3x	14.2x	12.4x	11.9x	13.1x	16.0x	18.4x	20.8x	18.7x	16.8x	15.1x
Cost of Capital	4.82%	4.63%	4.65%	5.06%	5.21%	5.24%	5.10%	5.05%	5.00%	4.82%	5.18%	5.48%	5.45%	5.45%	5.35%	5.20%	5.07%	4.90%	4.95%	4.95%	4.95%
CROCI Ex. GW	6.0%	5.7%	7.2%	6.3%	6.7%	7.3%	8.2%	8.1%	8.1%	8.9%	8.0%	6.2%	7.6%	7.2%	7.1%	6.7%	5.4%	5.4%	5.1%	5.8%	6.2%
Implied CROCI	8.1%	8.2%	9.8%	9.0%	8.3%	7.3%	7.7%	7.6%	8.3%	8.8%	8.0%	7.2%	7.7%	7.5%	7.5%	7.9%	8.0%	8.3%	7.8%	8.0%	7.6%
Implied Economic Earnings/ Economic Earnings	134%	144%	137%	144%	125%	101%	93%	94%	101%	99%	100%	115%	101%	103%	107%	119%	148%	153%	153%	137%	124%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of companies covered by the CROCI team in Europe. Data in EUR and is as on 14 December 2016.

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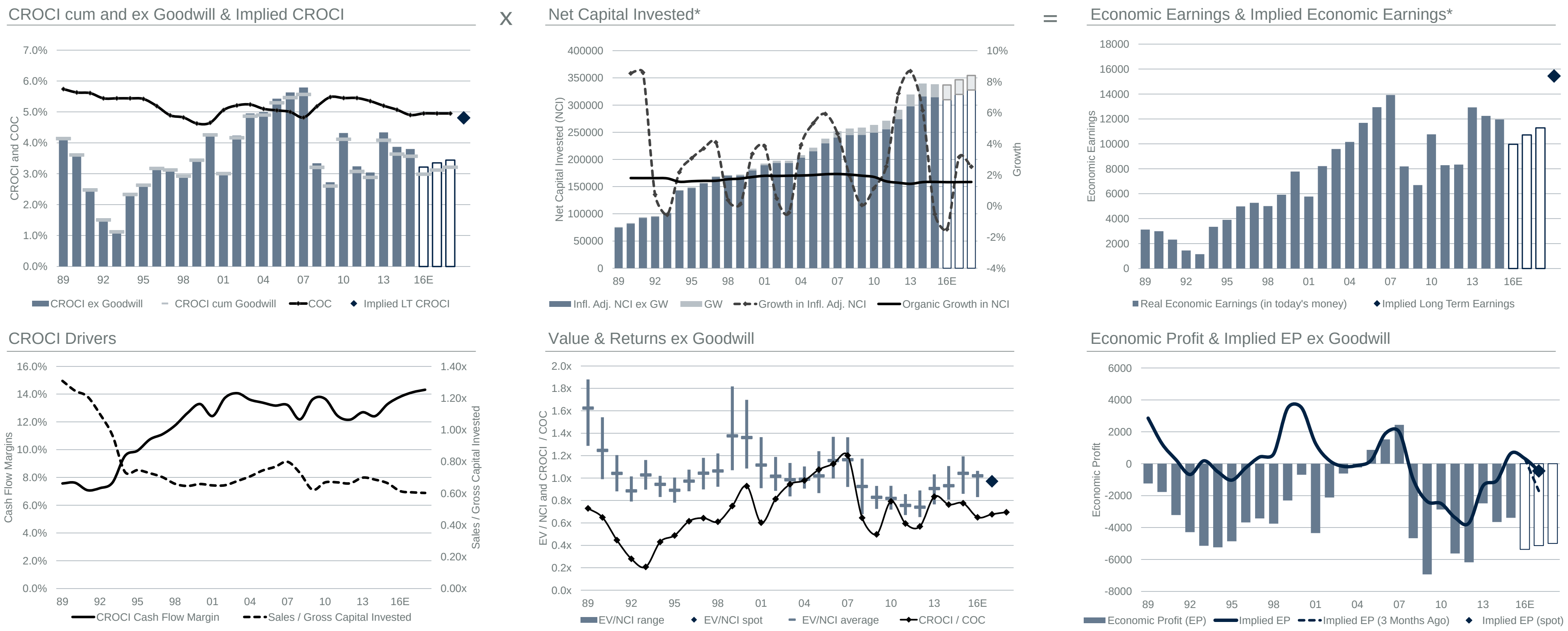
Figure 91: Japan Equities CROCI



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Enterprise Value (JPY tn)	213	275	284	241	222	212	218	232	279	292	235	209	208	193	198	262	284	322	316	312	307
Market Cap (JPY tn)	137	197	202	160	137	139	153	180	224	232	161	136	142	127	128	187	211	244	243	244	244
EV/NCI Ex. GW	1.06x	1.38x	1.36x	1.12x	1.02x	0.99x	0.99x	1.02x	1.16x	1.16x	0.93x	0.83x	0.82x	0.76x	0.74x	0.91x	0.93x	1.04x	1.02x	0.97x	0.93x
Economic PE	36.2x	39.6x	31.5x	36.6x	24.0x	19.9x	19.8x	18.8x	20.5x	20.1x	27.7x	30.4x	19.0x	23.3x	24.3x	20.9x	24.1x	27.4x	31.7x	29.0x	26.9x
Accounting PE	47.7x	56.5x	33.6x	49.0x	23.5x	17.1x	15.8x	15.6x	17.3x	16.7x	27.0x	20.4x	13.1x	15.2x	13.6x	13.6x	13.9x	15.5x	17.0x	15.3x	14.0x
Cost of Capital	4.82%	4.63%	4.65%	5.06%	5.21%	5.24%	5.10%	5.05%	5.00%	4.82%	5.18%	5.48%	5.45%	5.45%	5.35%	5.20%	5.07%	4.90%	4.95%	4.95%	4.95%
CROCI Ex. GW	2.9%	3.5%	4.3%	3.0%	4.2%	5.0%	5.0%	5.4%	5.6%	5.8%	3.3%	2.7%	4.3%	3.2%	3.0%	4.3%	3.9%	3.8%	3.2%	3.4%	3.4%
Implied CROCI	5.1%	6.4%	6.3%	5.7%	5.3%	5.2%	5.1%	5.2%	5.8%	5.6%	4.8%	4.5%	4.5%	4.1%	4.0%	4.7%	4.7%	5.1%	5.1%	4.8%	4.6%
Implied Economic Earnings/ Economic Earnings	174%	183%	147%	185%	125%	104%	101%	95%	103%	97%	143%	167%	103%	127%	130%	109%	122%	134%	157%	143%	133%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of companies covered by the CROCI team in Japan. Data in JPY and is as on 19 December 2016.

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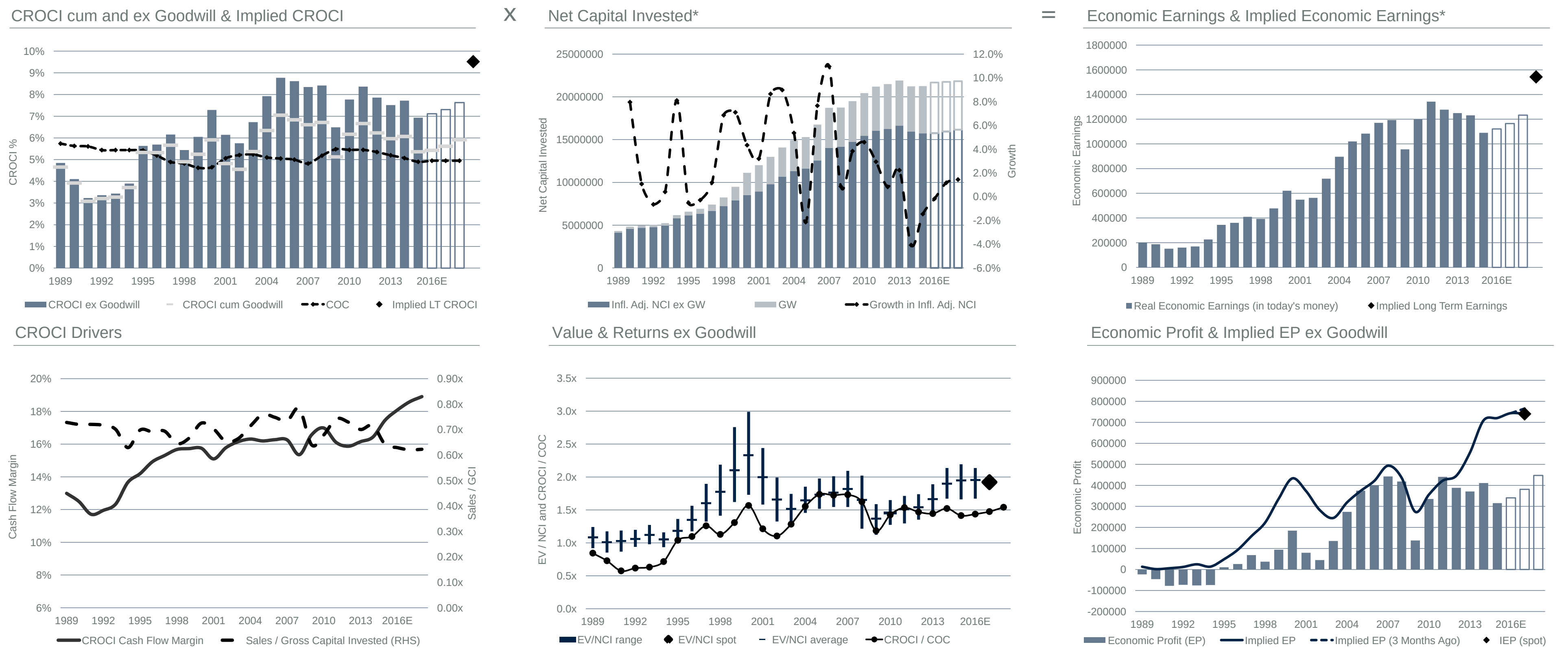
Figure 92: Developed Markets Equities CROCI



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Enterprise Value (USD m)	10570	13879	16331	14759	13654	13777	15965	17475	19489	22798	21364	18686	21008	22878	23829	26723	29546	30256	31379	31163	30537
Market Cap (USD m)	8802	11878	13835	11885	10239	10357	12529	14024	15884	18601	16028	13319	15793	17297	18035	21069	23757	24214	24844	25022	25010
EV/NCI ex. GW	1.77x	2.10x	2.33x	2.00x	1.66x	1.51x	1.64x	1.73x	1.76x	1.82x	1.65x	1.37x	1.45x	1.51x	1.54x	1.67x	1.90x	1.95x	1.95x	1.92x	1.83x
Economic PE	32.6x	34.8x	32.0x	32.6x	28.9x	22.5x	20.7x	19.8x	20.4x	21.8x	19.6x	21.0x	18.7x	18.1x	19.6x	22.2x	24.6x	28.1x	27.5x	26.3x	23.9x
Accounting PE	27.0x	31.1x	27.7x	28.8x	22.4x	17.4x	16.1x	15.8x	16.0x	16.3x	15.3x	15.7x	13.4x	13.0x	13.9x	16.1x	17.7x	19.7x	19.4x	17.9x	16.3x
Cost of Capital	4.82%	4.63%	4.65%	5.06%	5.21%	5.24%	5.10%	5.05%	5.00%	4.82%	5.18%	5.48%	5.45%	5.45%	5.35%	5.20%	5.07%	4.90%	4.95%	4.95%	4.95%
CROCI Ex. GW	5.4%	6.0%	7.3%	6.1%	5.8%	6.7%	7.9%	8.8%	8.6%	8.3%	8.4%	6.5%	7.8%	8.4%	7.9%	7.5%	7.7%	6.9%	7.1%	7.3%	7.6%
Implied CROCI	8.6%	9.7%	10.8%	10.1%	8.7%	7.9%	8.4%	8.8%	8.8%	8.8%	8.6%	7.5%	7.9%	8.2%	8.2%	8.7%	9.6%	9.5%	9.7%	9.5%	9.0%
Implied Economic Earnings/ Ec. Earnings	157%	161%	149%	165%	150%	118%	106%	100%	102%	105%	102%	115%	102%	99%	105%	115%	125%	138%	136%	130%	119%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of companies covered by the CROCI team in the MSCI World Index. Data in USD and is as on 14 December 2015.

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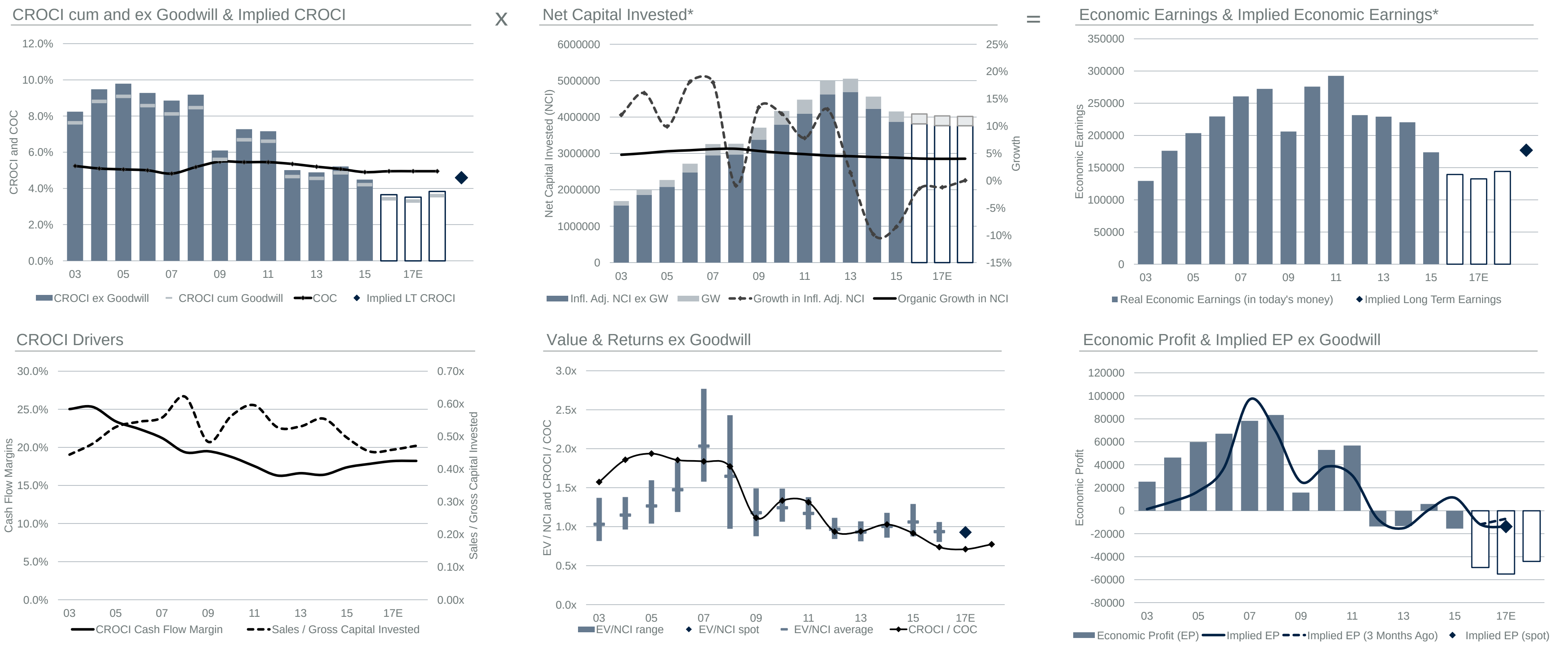
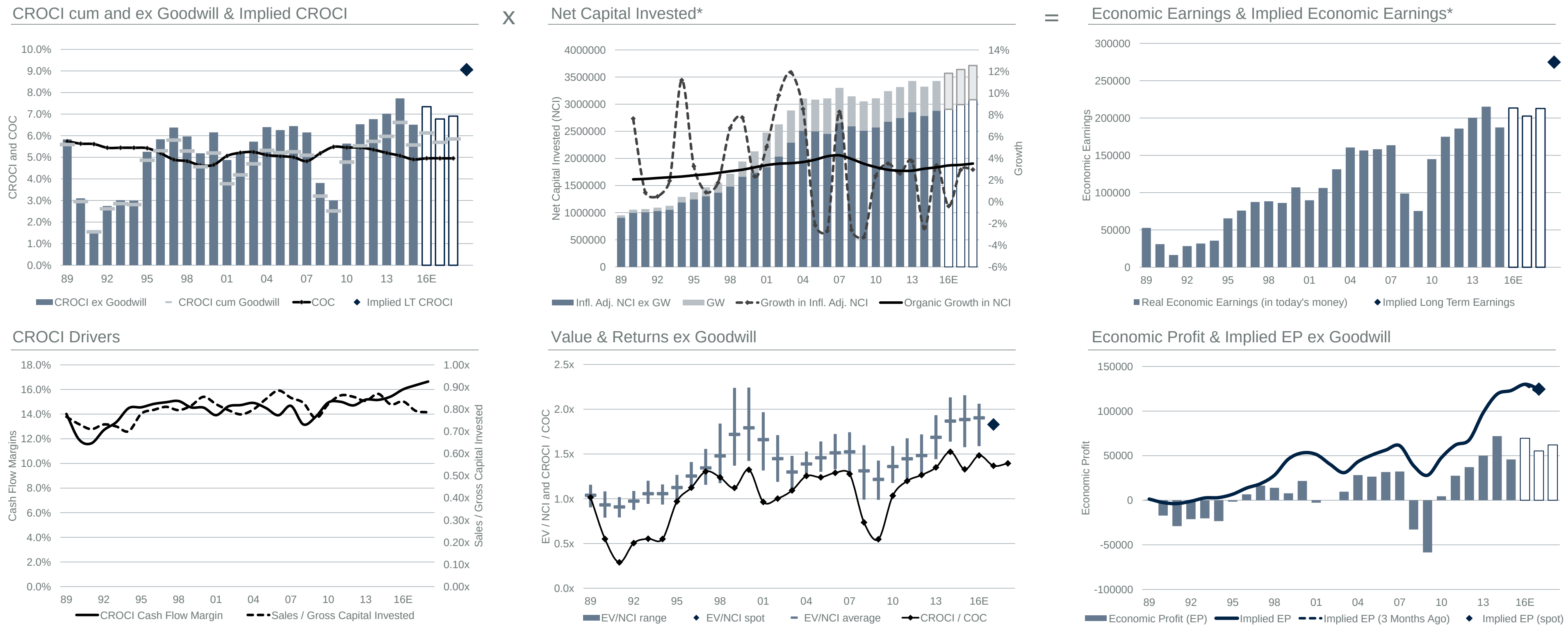
Figure 93: Emerging Markets Equities CROCI



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Enterprise Value (USD bn)	870	1216	1598	2314	3949	3430	3010	3607	3884	3899	3977	4036	4015	2759	3576	3486
Market Cap (USD bn)	668	977	1314	1952	3524	2966	2493	3038	3247	3104	3093	3129	3150	3573	2822	2818
EV/NCI Ex. GW	1.03x	1.15x	1.27x	1.47x	2.03x	1.65x	1.18x	1.24x	1.17x	0.97x	0.93x	1.00x	1.06x	0.94x	0.93x	0.89x
Economic PE	12.5x	12.1x	12.9x	15.9x	23.0x	17.9x	19.3x	17.1x	16.4x	19.3x	19.1x	19.3x	23.6x	25.6x	26.4x	23.1x
Accounting PE	9.8x	9.2x	10.3x	11.9x	18.0x	15.9x	14.0x	11.9x	11.5x	12.0x	11.2x	12.8x	16.4x	16.0x	14.4x	13.1x
Cost of Capital	5.24%	5.10%	5.05%	5.00%	4.82%	5.18%	5.48%	5.45%	5.45%	5.35%	5.20%	5.07%	4.90%	4.95%	4.95%	4.95%
CROCI Ex. GW	8.2%	9.5%	9.8%	9.3%	8.9%	9.2%	6.1%	7.3%	7.2%	5.0%	4.9%	5.2%	4.5%	3.7%	3.5%	3.8%
Implied CROCI	5.4%	5.9%	6.4%	7.4%	9.8%	8.5%	6.5%	6.8%	6.4%	5.2%	4.8%	5.1%	5.2%	4.6%	4.6%	4.4%
Implied Economic Earnings/ Economic Earnings	66%	62%	65%	79%	111%	93%	106%	93%	89%	103%	99%	98%	116%	127%	130%	114%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of companies covered by the CROCI team in Emerging Markets. Data in USD and is as on 19 December 2016.

Figure 94: Consumer Discretionary CROCI



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Enterprise Value (USD bn)	1802	2384	2581	2550	2497	2562	3021	3194	3318	3689	3145	2869	3312	3676	3888	4632	5050	5347	5534	5552	5488
Market Cap (USD bn)	1306	1841	1874	1719	1526	1561	1919	2104	2393	2651	1880	1698	2292	2628	2812	3554	3957	4182	4200	4254	4254
EV/NCI Ex. GW	1.48x	1.72x	1.79x	1.66x	1.45x	1.30x	1.39x	1.46x	1.51x	1.52x	1.31x	1.22x	1.36x	1.45x	1.48x	1.69x	1.87x	1.89x	1.90x	1.83x	1.73x
Economic PE	24.8x	33.2x	29.1x	34.1x	27.8x	22.7x	21.7x	23.3x	23.5x	24.8x	34.4x	40.6x	24.1x	22.2x	21.9x	24.0x	24.2x	28.9x	25.9x	27.0x	25.0x
Accounting PE	23.0x	31.8x	27.1x	35.1x	20.4x	16.7x	15.5x	16.8x	18.9x	17.4x	33.8x	29.0x	14.3x	14.7x	15.1x	16.6x	17.8x	18.2x	17.5x	16.9x	15.5x
Cost of Capital	4.82%	4.63%	4.65%	5.06%	5.21%	5.24%	5.10%	5.05%	5.00%	4.82%	5.18%	5.48%	5.45%	5.45%	5.35%	5.20%	5.07%	4.90%	4.95%	4.95%	4.95%
CROCI Ex. GW	6.0%	5.2%	6.2%	4.9%	5.2%	5.7%	6.4%	6.3%	6.4%	6.2%	3.8%	3.0%	5.6%	6.5%	6.8%	7.0%	7.7%	6.5%	7.3%	6.8%	6.9%
Implied CROCI	7.1%	8.0%	8.3%	8.4%	7.5%	6.8%	7.1%	7.4%	7.6%	7.4%	6.8%	6.7%	7.4%	7.9%	7.9%	8.8%	9.5%	9.2%	9.4%	9.1%	8.6%
Implied Economic Earnings/ Economic Earnings	119%	153%	135%	172%	145%	119%	111%	118%	117%	119%	178%	222%	132%	121%	117%	125%	123%	142%	128%	134%	124%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of companies covered by the CROCI team in the sector. Data in USD as on 19 December 2016.

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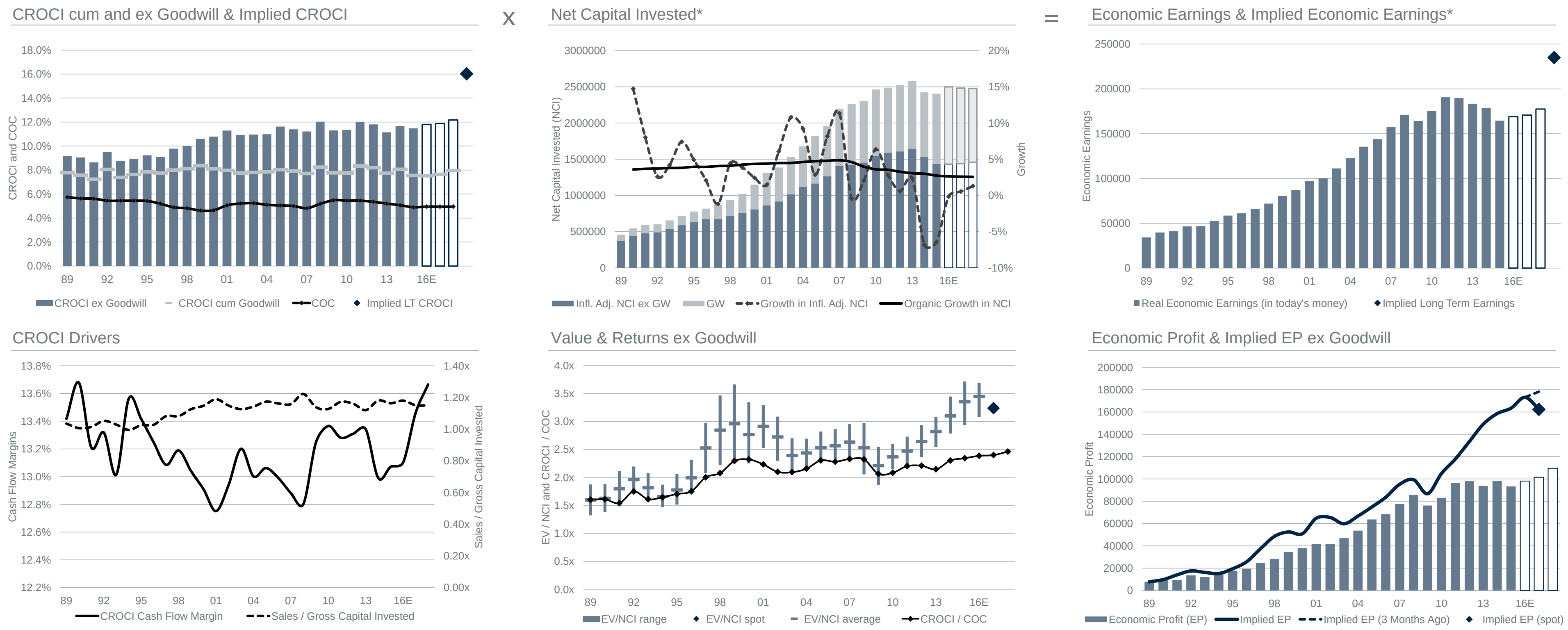
Figure 95: Consumer Staples CROCI



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Enterprise Value (USD bn)	1550	1712	1710	1947	1985	1959	2217	2450	2739	3185	3166	2890	3330	3632	4010	4441	4618	4754	4930	4746	4676
Market Cap (USD bn)	1364	1462	1409	1587	1601	1552	1779	1969	2246	2606	2404	2192	2611	2841	3187	3599	3759	3899	4068	3888	3888
EV/NCI Ex. GW	2.84x	2.96x	2.77x	2.91x	2.72x	2.39x	2.44x	2.53x	2.56x	2.63x	2.53x	2.21x	2.37x	2.47x	2.64x	2.82x	3.10x	3.35x	3.44x	3.24x	3.08x
Economic PE	28.4x	27.9x	25.6x	25.8x	24.9x	21.8x	22.2x	21.8x	22.5x	23.4x	21.1x	19.6x	20.9x	20.6x	22.4x	25.3x	26.6x	29.2x	29.2x	27.3x	25.3x
Accounting PE	26.3x	26.1x	22.9x	22.2x	20.3x	17.0x	17.8x	17.9x	18.4x	18.9x	17.0x	14.5x	15.6x	15.5x	16.8x	18.9x	20.6x	22.1x	21.7x	19.6x	18.2x
Cost of Capital	4.82%	4.63%	4.65%	5.06%	5.21%	5.24%	5.10%	5.05%	5.00%	4.82%	5.18%	5.48%	5.45%	5.45%	5.35%	5.20%	5.07%	4.90%	4.95%	4.95%	4.95%
CROCI Ex. GW	10.0%	10.6%	10.8%	11.3%	10.9%	11.0%	11.0%	11.6%	11.4%	11.2%	12.0%	11.3%	11.4%	12.0%	11.8%	11.1%	11.7%	11.5%	11.8%	11.9%	12.2%
Implied CROCI	13.7%	13.7%	12.9%	14.7%	14.2%	12.5%	12.4%	12.8%	12.8%	12.7%	13.1%	12.1%	12.9%	13.5%	14.1%	14.7%	15.7%	16.4%	17.1%	16.0%	15.3%
Implied Economic Earnings/ Economic Earnings	137%	129%	119%	130%	130%	114%	113%	110%	113%	113%	109%	107%	114%	112%	120%	131%	135%	143%	144%	135%	125%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of companies covered by the CROCI team in the sector. Data in USD as on 19 December 2016.

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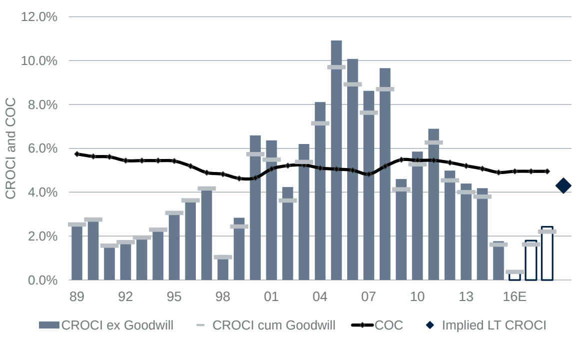
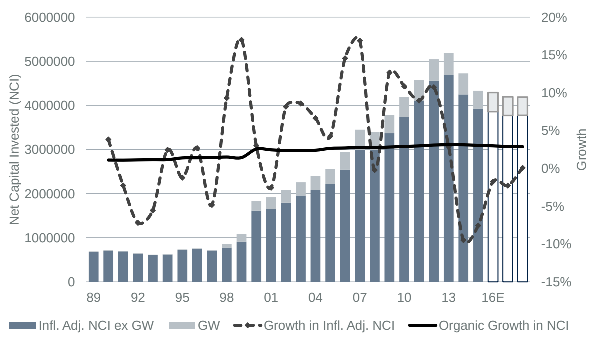
Figure 96: Energy CROCI

CROCI cum and ex Goodwill & Implied CROCI



X

Net Capital Invested*



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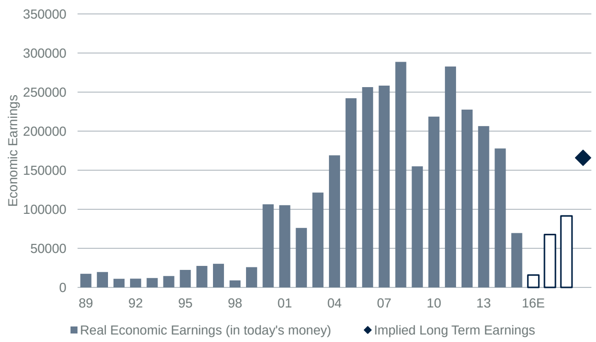
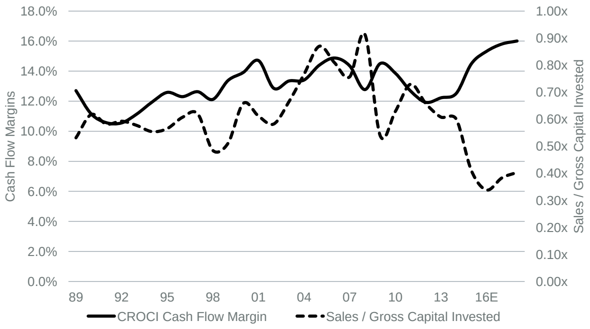
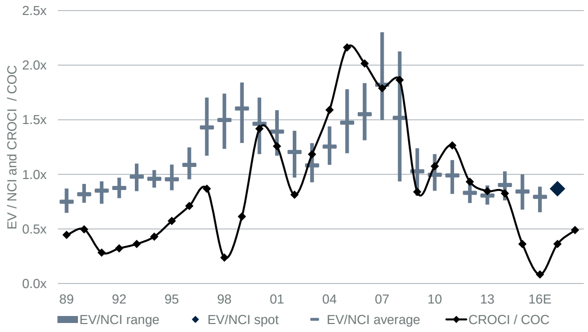
Economic Earnings & Implied Economic Earnings*



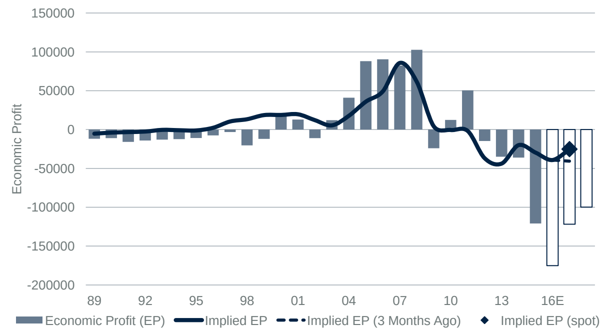
CROCI Drivers



Value & Returns ex Goodwill



Economic Profit & Implied EP ex Goodwill



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Enterprise Value (USD bn)	828	1069	1275	1380	1362	1356	1709	2212	2765	3947	3483	2818	3052	3462	3390	3512	3692	3260	3065	3350	3317
Market Cap (USD bn)	772	939	1147	1215	1148	1172	1579	2096	2602	3790	3234	2477	2661	3008	2856	2929	3062	2611	2343	2623	2624
EV/NCI Ex. GW	1.50x	1.60x	1.46x	1.39x	1.21x	1.08x	1.25x	1.47x	1.55x	1.82x	1.52x	1.03x	1.00x	0.99x	0.83x	0.81x	0.90x	0.84x	0.79x	0.87x	0.84x
Economic PE	nm	56.5x	22.2x	21.9x	28.4x	17.5x	15.5x	13.5x	15.4x	21.1x	15.7x	22.4x	17.0x	14.4x	16.7x	18.3x	21.6x	47.6x	nm	48.4x	34.6x
Accounting PE	33.8x	26.5x	12.9x	14.1x	15.7x	10.8x	9.7x	9.3x	9.9x	13.5x	10.8x	13.6x	10.6x	8.9x	9.5x	10.7x	12.8x	25.0x	42.0x	22.6x	17.5x
Cost of Capital	4.82%	4.63%	4.65%	5.06%	5.21%	5.24%	5.10%	5.05%	5.00%	4.82%	5.18%	5.48%	5.45%	5.45%	5.35%	5.20%	5.07%	4.90%	4.95%	4.95%	4.95%
CROCI Ex. GW	1.1%	2.8%	6.6%	6.4%	4.2%	6.2%	8.1%	10.9%	10.1%	8.6%	9.7%	4.6%	5.9%	6.9%	5.0%	4.4%	4.2%	1.8%	0.4%	1.8%	2.4%
Implied CROCI	7.2%	7.4%	6.8%	7.0%	6.3%	5.7%	6.4%	7.4%	7.8%	8.8%	7.9%	5.6%	5.4%	5.4%	4.4%	4.2%	4.6%	4.1%	3.9%	4.3%	4.2%
Implied Economic Earnings/ Economic Earnings	631%	261%	103%	111%	148%	91%	79%	68%	77%	102%	81%	122%	93%	78%	89%	95%	109%	233%	nm	240%	171%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of companies covered by the CROCI team in the sector. Data in USD as on 19 December 2016.

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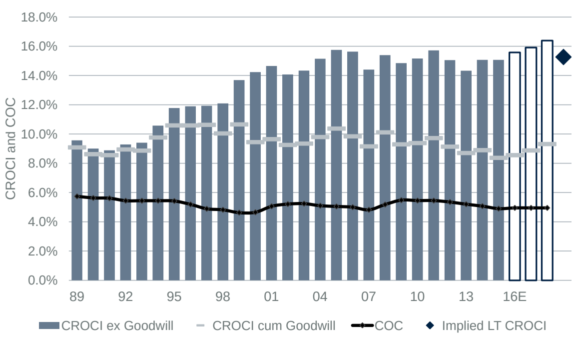
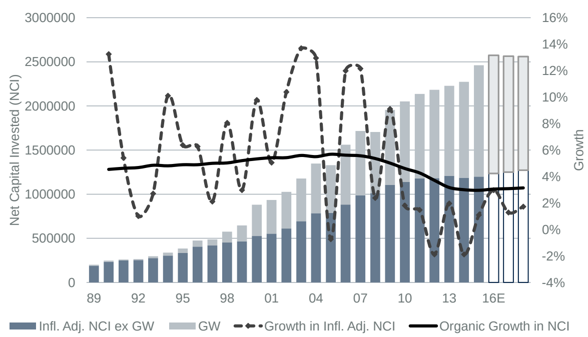
Figure 97: Health Care CROCI

CROCI cum and ex Goodwill & Implied CROCI



x

Net Capital Invested*



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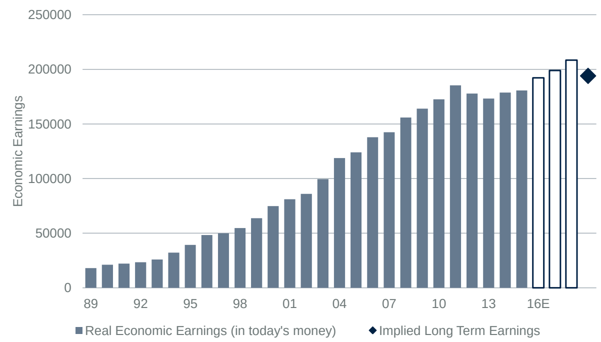
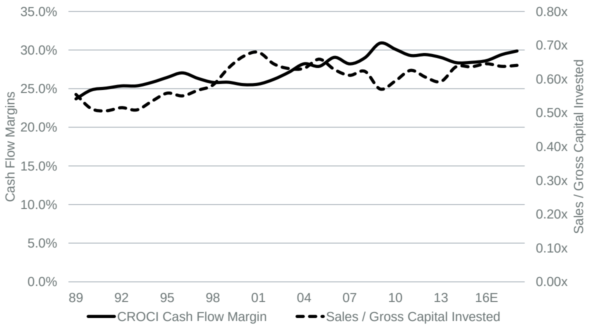
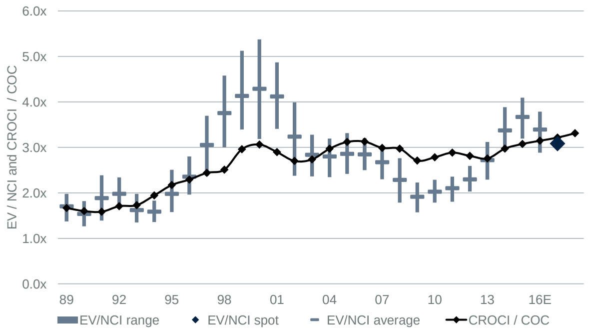
Economic Earnings & Implied Economic Earnings*



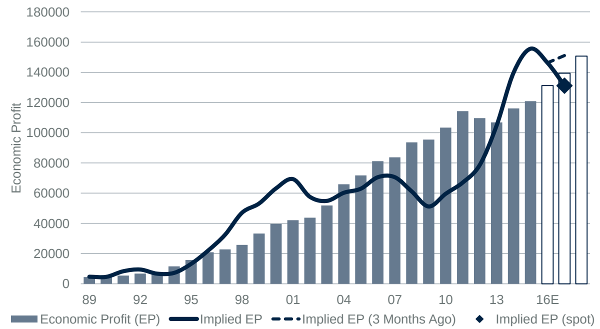
CROCI Drivers



Value & Returns ex Goodwill



Economic Profit & Implied EP ex Goodwill



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Enterprise Value (USD bn)	1329	1514	1770	1807	1597	1616	1836	1916	2173	2337	2095	1952	2156	2341	2596	3183	3915	4364	4189	3920	3780
Market Cap (USD bn)	1315	1515	1780	1797	1561	1554	1783	1870	2048	2201	1926	1735	1917	2061	2285	2893	3536	3885	3629	3478	3478
EV/NCI Ex. GW	3.76x	4.13x	4.29x	4.12x	3.24x	2.84x	2.80x	2.86x	2.85x	2.68x	2.29x	1.92x	2.03x	2.10x	2.30x	2.72x	3.37x	3.67x	3.39x	3.08x	2.87x
Economic PE	31.0x	30.2x	30.1x	28.1x	23.0x	19.8x	18.5x	18.1x	18.2x	18.6x	14.9x	12.9x	13.4x	13.4x	15.3x	19.0x	22.4x	24.4x	21.8x	19.4x	17.5x
Accounting PE	31.2x	31.5x	30.5x	29.0x	24.3x	20.1x	18.8x	18.6x	17.8x	17.8x	14.1x	12.6x	12.3x	12.3x	13.6x	16.9x	19.4x	20.6x	17.6x	15.4x	14.2x
Cost of Capital	4.82%	4.63%	4.65%	5.06%	5.21%	5.24%	5.10%	5.05%	5.00%	4.82%	5.18%	5.48%	5.45%	5.45%	5.35%	5.20%	5.07%	4.90%	4.95%	4.95%	4.95%
CROCI Ex. GW	12.1%	13.7%	14.2%	14.7%	14.1%	14.3%	15.2%	15.8%	15.6%	14.4%	15.4%	14.9%	15.2%	15.7%	15.1%	14.3%	15.1%	15.1%	15.6%	15.9%	16.4%
Implied CROCI	18.1%	19.1%	19.9%	20.9%	16.9%	14.9%	14.3%	14.4%	14.2%	12.9%	11.8%	10.5%	11.0%	11.5%	12.3%	14.1%	17.1%	18.0%	16.8%	15.3%	14.2%
Implied Economic Earnings/ Economic Earnings	150%	140%	140%	142%	120%	104%	94%	92%	91%	90%	77%	71%	73%	73%	82%	99%	113%	119%	108%	96%	87%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of companies covered by the CROCI team in the sector. Data in USD as on 19 December 2016.

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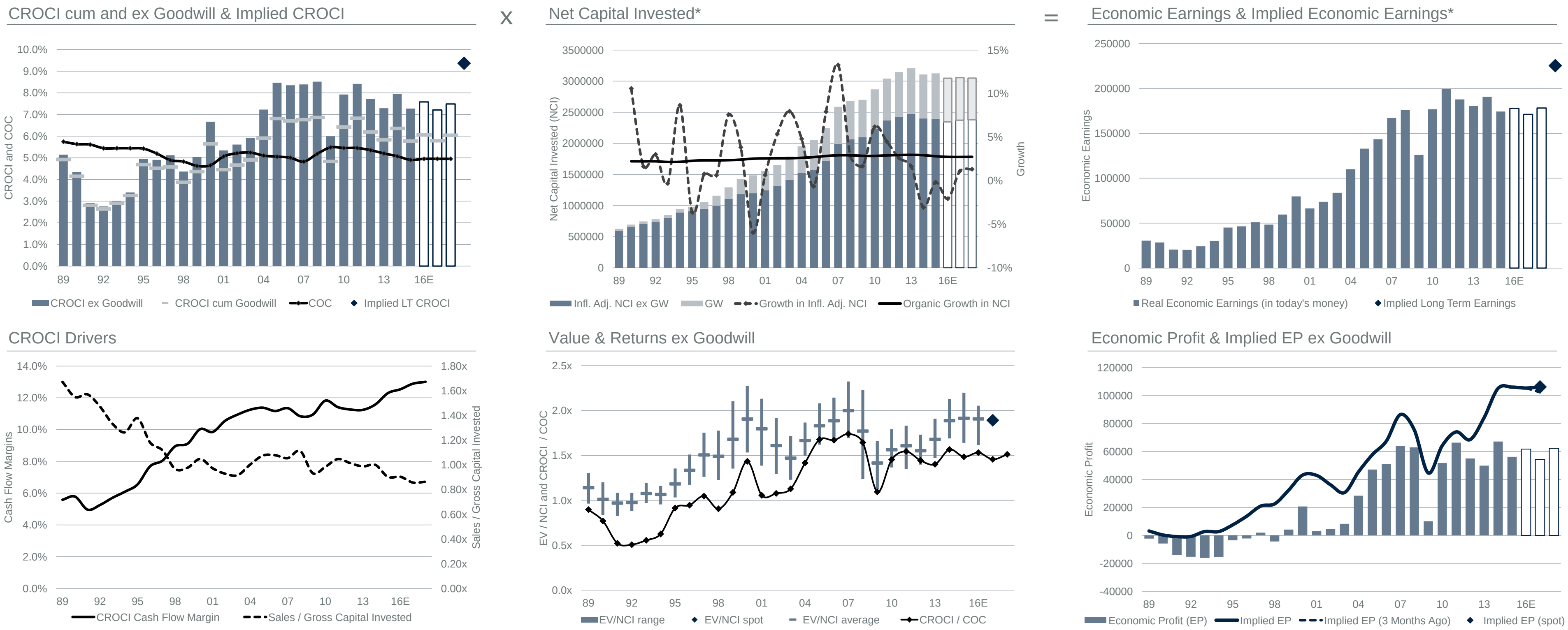
Figure 98: Industrials CROCI



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Enterprise Value (USD bn)	1422	1729	1953	1914	1833	1828	2225	2523	2875	3588	3345	2771	3271	3593	3601	4009	4415	4533	4477	4553	4449
Market Cap (USD bn)	1106	1408	1622	1495	1329	1321	1702	1984	2329	2888	2378	1804	2314	2545	2479	2967	3344	3381	3323	3441	3421
EV/NCI Ex. GW	1.49x	1.68x	1.91x	1.80x	1.61x	1.47x	1.67x	1.83x	1.89x	2.00x	1.77x	1.42x	1.56x	1.61x	1.55x	1.68x	1.89x	1.91x	1.91x	1.89x	1.81x
Economic PE	34.1x	33.4x	28.6x	33.6x	28.7x	24.9x	23.1x	21.6x	22.6x	23.8x	20.8x	23.6x	19.7x	19.1x	20.1x	23.0x	23.8x	26.3x	25.2x	26.2x	24.2x
Accounting PE	24.5x	25.9x	22.5x	26.5x	21.1x	17.3x	16.2x	16.2x	16.2x	16.9x	15.5x	18.0x	13.7x	13.2x	13.2x	15.7x	16.7x	17.8x	17.3x	17.2x	15.8x
Cost of Capital	4.82%	4.63%	4.65%	5.06%	5.21%	5.24%	5.10%	5.05%	5.00%	4.82%	5.18%	5.48%	5.45%	5.45%	5.35%	5.20%	5.07%	4.90%	4.95%	4.95%	4.95%
CROCI Ex. GW	4.4%	5.0%	6.7%	5.3%	5.6%	5.9%	7.2%	8.5%	8.4%	8.4%	8.5%	6.0%	7.9%	8.4%	7.7%	7.3%	7.9%	7.3%	7.6%	7.2%	7.5%
Implied CROCI	7.2%	7.8%	8.9%	9.1%	8.4%	7.7%	8.5%	9.2%	9.4%	9.6%	9.2%	7.8%	8.5%	8.8%	8.3%	8.7%	9.6%	9.4%	9.4%	9.4%	9.0%
Implied Economic Earnings/ Economic Earnings	165%	154%	133%	170%	150%	130%	118%	109%	113%	115%	108%	129%	108%	104%	108%	120%	121%	129%	125%	130%	120%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of companies covered by the CROCI team in the sector. Data in USD as on 19 December 2016.

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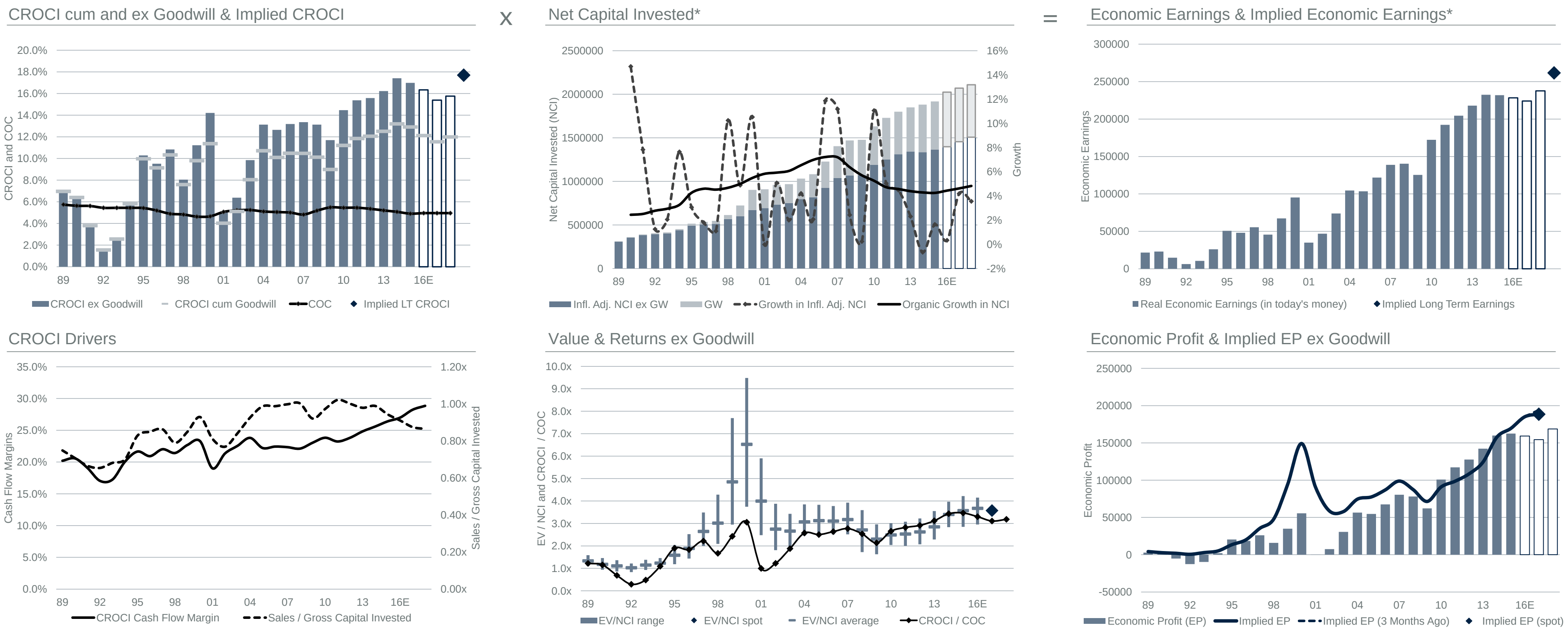
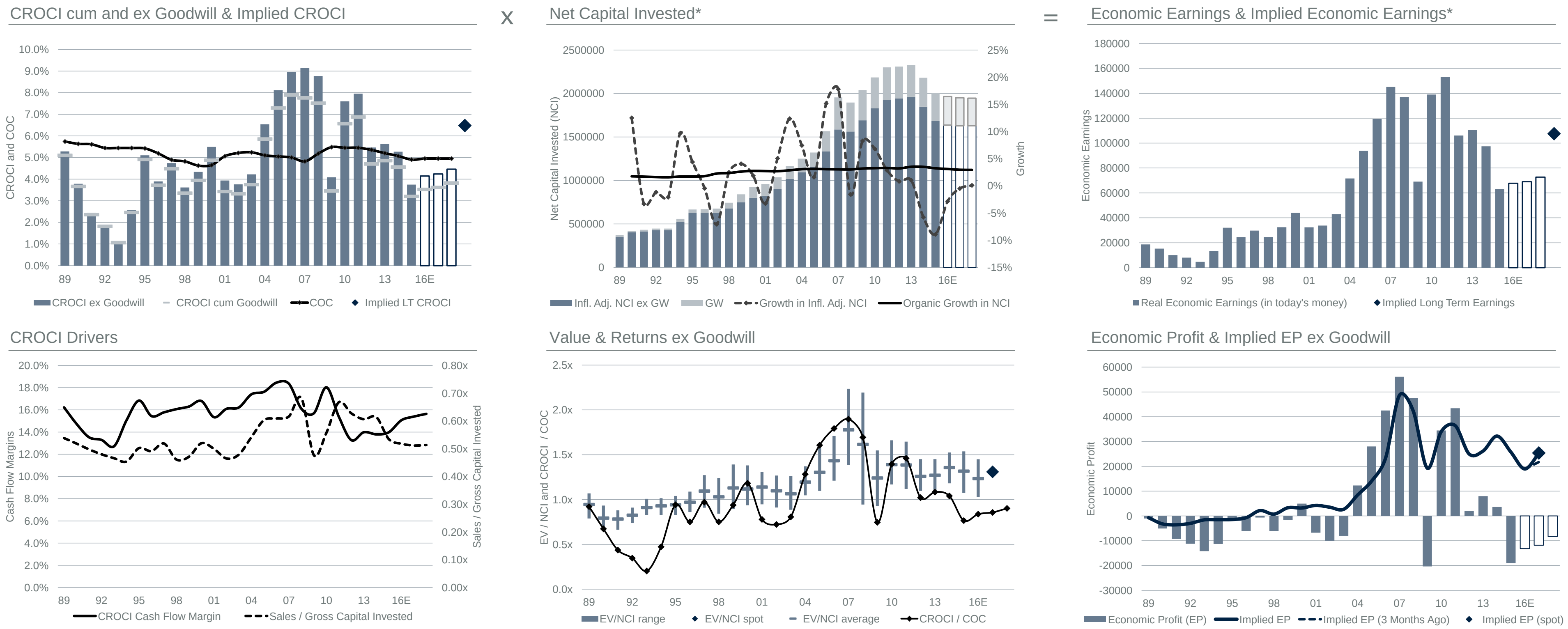
Figure 99: Information Technology CROCI



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Enterprise Value (USD bn)	1482	2566	3788	2386	1767	1768	2165	2256	2563	2992	2668	2303	2786	2989	3275	3679	4408	4802	5137	5286	5056
Market Cap (USD bn)	1440	2586	3756	2380	1729	1807	2239	2351	2634	3014	2619	2323	2860	3054	3370	3886	4610	5006	5334	5634	5634
EV/NCI Ex. GW	3.02x	4.86x	6.53x	4.00x	2.75x	2.66x	3.07x	3.13x	3.11x	3.18x	2.71x	2.30x	2.49x	2.53x	2.62x	2.85x	3.40x	3.57x	3.68x	3.57x	3.24x
Economic PE	37.5x	43.3x	45.9x	79.2x	43.1x	27.0x	23.4x	24.7x	23.6x	23.8x	20.7x	19.7x	17.2x	16.5x	16.8x	17.6x	19.5x	21.0x	22.5x	23.2x	20.6x
Accounting PE	36.8x	43.2x	49.0x	95.7x	42.4x	27.0x	21.6x	23.3x	21.3x	20.4x	19.9x	16.9x	14.0x	14.3x	14.7x	15.6x	17.3x	18.1x	19.2x	18.3x	16.7x
Cost of Capital	4.82%	4.63%	4.65%	5.06%	5.21%	5.24%	5.10%	5.05%	5.00%	4.82%	5.18%	5.48%	5.45%	5.45%	5.35%	5.20%	5.07%	4.90%	4.95%	4.95%	4.95%
CROCI Ex. GW	8.1%	11.2%	14.2%	5.0%	6.4%	9.8%	13.1%	12.6%	13.2%	13.4%	13.1%	11.7%	14.5%	15.4%	15.6%	16.2%	17.4%	17.0%	16.3%	15.4%	15.8%
Implied CROCI	14.5%	22.5%	30.3%	20.2%	14.3%	13.9%	15.7%	15.8%	15.5%	15.3%	14.1%	12.6%	13.6%	13.8%	14.0%	14.8%	17.3%	17.5%	18.2%	17.7%	16.0%
Implied Economic Earnings/ Economic Earnings	181%	200%	214%	401%	225%	142%	119%	125%	118%	115%	107%	108%	94%	90%	90%	91%	99%	103%	111%	115%	102%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of companies covered by the CROCI team in the sector. Data in USD as on 19 December 2016.

Figure 100: Materials CROCI



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Enterprise Value (USD bn)	519	623	654	687	758	840	1016	1192	1536	2306	2136	1812	2224	2401	2265	2356	2416	2180	2018	2173	2121
Market Cap (USD bn)	393	475	457	477	509	557	733	907	1178	1728	1568	1207	1607	1742	1547	1622	1688	1505	1438	1565	1565
EV/NCI Ex. GW	1.03x	1.13x	1.12x	1.14x	1.10x	1.06x	1.20x	1.30x	1.43x	1.78x	1.62x	1.24x	1.39x	1.39x	1.26x	1.27x	1.36x	1.32x	1.23x	1.31x	1.25x
Economic PE	28.5x	26.0x	20.3x	28.9x	29.2x	25.2x	18.3x	16.1x	16.0x	19.4x	18.4x	30.4x	18.3x	17.4x	23.1x	22.6x	25.7x	35.1x	29.8x	30.9x	28.0x
Accounting PE	16.6x	19.3x	13.7x	18.6x	18.5x	15.2x	11.8x	11.1x	11.2x	12.9x	13.5x	20.0x	12.9x	12.2x	15.8x	15.8x	16.8x	21.3x	17.8x	17.6x	16.2x
Cost of Capital	4.82%	4.63%	4.65%	5.06%	5.21%	5.24%	5.10%	5.05%	5.00%	4.82%	5.18%	5.48%	5.45%	5.45%	5.35%	5.20%	5.07%	4.90%	4.95%	4.95%	4.95%
CROCI Ex. GW	3.6%	4.3%	5.5%	3.9%	3.8%	4.2%	6.5%	8.1%	9.0%	9.1%	8.8%	4.1%	7.6%	8.0%	5.5%	5.6%	5.3%	3.7%	4.1%	4.2%	4.5%
Implied CROCI	5.0%	5.2%	5.2%	5.8%	5.7%	5.6%	6.1%	6.6%	7.2%	8.6%	8.4%	6.8%	7.6%	7.6%	6.7%	6.6%	6.9%	6.5%	6.1%	6.5%	6.2%
Implied Economic Earnings/ Economic Earnings	137%	120%	95%	146%	152%	132%	93%	81%	80%	94%	95%	166%	100%	95%	123%	117%	130%	172%	147%	153%	139%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of companies covered by the CROCI team in the sector. Data in USD as on 19 December 2016.

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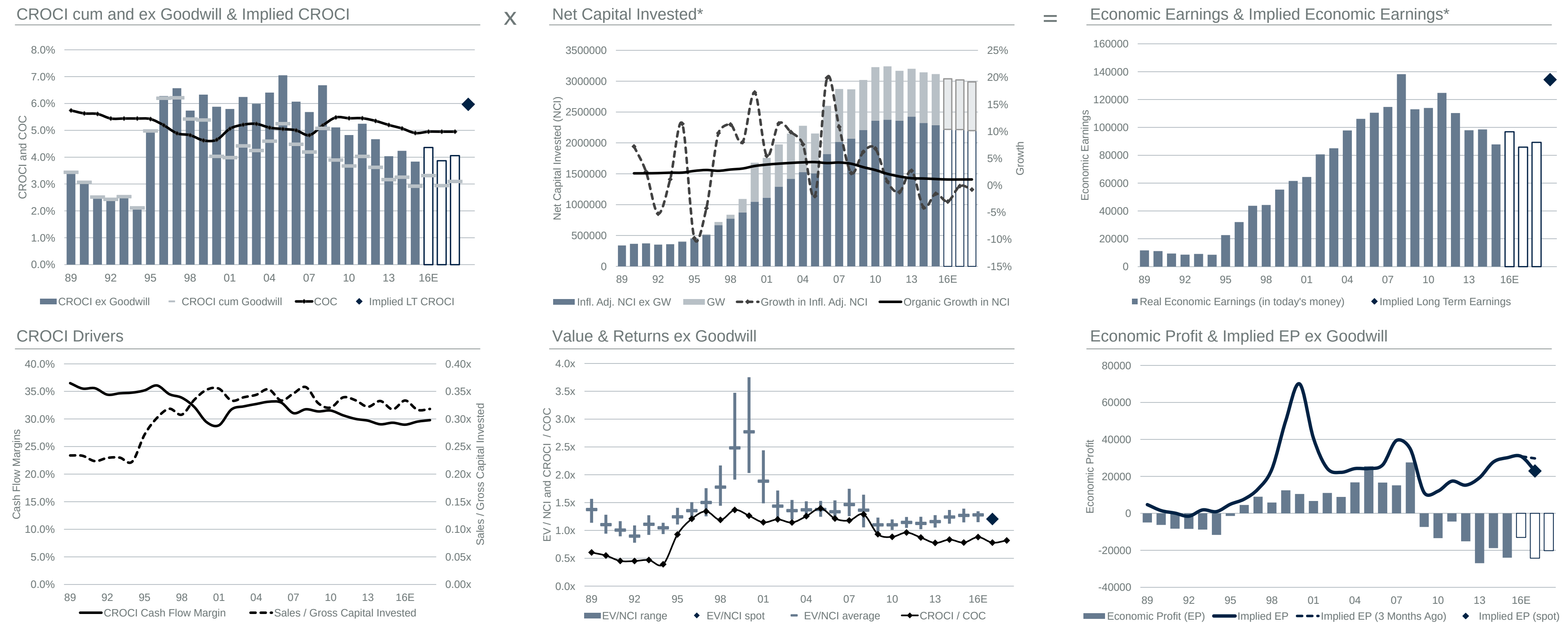
Figure 101: Telecommunications Services CROCI



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Enterprise Value (USD bn)	1133	1813	2354	1711	1531	1608	1752	1751	2079	2573	2507	2213	2375	2517	2516	2696	2809	2874	2842	2713	2659
Market Cap (USD bn)	885	1538	1894	1242	955	1035	1190	1220	1353	1890	1682	1402	1550	1665	1651	1703	1845	1889	1817	1733	1733
EV/NCI Ex. GW	1.78x	2.48x	2.77x	1.89x	1.44x	1.36x	1.37x	1.38x	1.34x	1.47x	1.37x	1.10x	1.10x	1.15x	1.13x	1.16x	1.24x	1.27x	1.28x	1.21x	1.17x
Economic PE	31.0x	39.2x	47.1x	32.5x	23.0x	22.6x	21.4x	19.5x	22.0x	25.8x	20.4x	21.5x	22.8x	21.8x	24.1x	28.7x	29.3x	33.1x	29.3x	31.2x	28.8x
Accounting PE	26.7x	39.6x	38.6x	30.2x	17.4x	13.9x	13.5x	13.4x	14.2x	16.4x	13.4x	11.3x	11.9x	12.4x	12.1x	13.6x	15.8x	16.7x	15.1x	14.0x	13.2x
Cost of Capital	4.82%	4.63%	4.65%	5.06%	5.21%	5.24%	5.10%	5.05%	5.00%	4.82%	5.18%	5.48%	5.45%	5.45%	5.35%	5.20%	5.07%	4.90%	4.95%	4.95%	4.95%
CROCI Ex. GW	5.7%	6.3%	5.9%	5.8%	6.2%	6.0%	6.4%	7.1%	6.1%	5.7%	6.7%	5.1%	4.8%	5.2%	4.7%	4.0%	4.2%	3.8%	4.4%	3.9%	4.1%
Implied CROCI	8.6%	11.5%	12.9%	9.5%	7.5%	7.1%	7.0%	7.0%	6.7%	7.1%	7.1%	6.0%	6.0%	6.2%	6.0%	6.0%	6.3%	6.2%	6.3%	6.0%	5.8%
Implied Economic Earnings/ Economic Earnings	150%	182%	219%	165%	120%	119%	109%	99%	110%	124%	106%	118%	124%	119%	129%	149%	149%	162%	145%	154%	143%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of companies covered by the CROCI team in the sector. Data in USD as on 19 December 2016.

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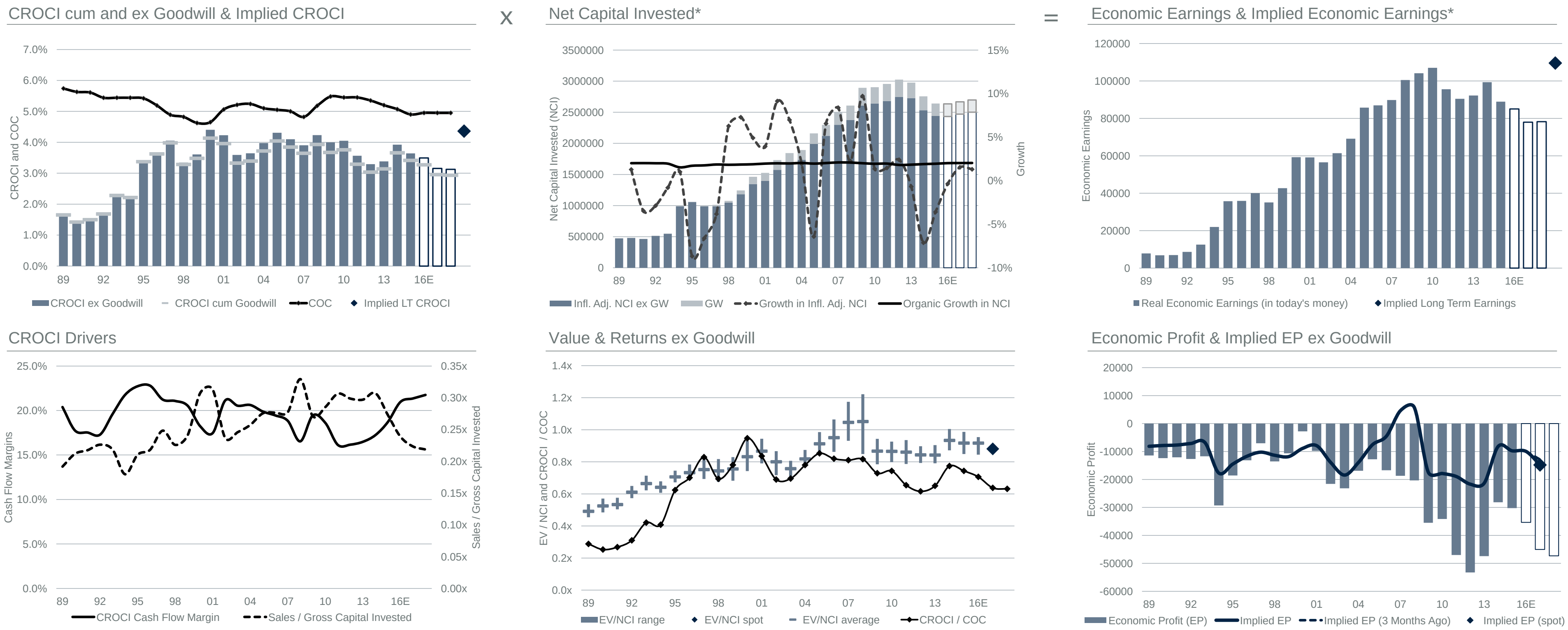
Figure 102: Utilities CROCI



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Enterprise Value (USD bn)	684	793	950	1018	1069	1101	1233	1573	1763	2141	2254	2074	2115	2149	2188	2200	2296	2208	2230	2213	2250
Market Cap (USD bn)	358	386	450	493	459	468	590	846	1063	1373	1322	997	1040	1010	963	1030	1134	1076	1069	1026	1028
EV/NCI Ex. GW	0.74x	0.76x	0.83x	0.87x	0.80x	0.76x	0.82x	0.91x	0.95x	1.05x	1.05x	0.87x	0.87x	0.86x	0.84x	0.84x	0.93x	0.92x	0.92x	0.88x	0.87x
Economic PE	22.2x	20.9x	18.9x	20.5x	22.3x	20.8x	20.6x	21.2x	23.2x	26.8x	24.9x	21.7x	21.4x	24.1x	25.6x	24.9x	23.8x	25.2x	26.2x	27.9x	27.7x
Accounting PE	20.2x	18.1x	15.3x	15.0x	14.6x	12.2x	12.7x	14.6x	16.3x	18.4x	17.9x	13.2x	13.4x	17.9x	15.5x	14.4x	14.9x	14.2x	14.8x	14.6x	13.9x
Cost of Capital	4.82%	4.63%	4.65%	5.06%	5.21%	5.24%	5.10%	5.05%	5.00%	4.82%	5.18%	5.48%	5.45%	5.45%	5.35%	5.20%	5.07%	4.90%	4.95%	4.95%	4.95%
CROCI Ex. GW	3.3%	3.6%	4.4%	4.2%	3.6%	3.6%	4.0%	4.3%	4.1%	3.9%	4.2%	4.0%	4.1%	3.6%	3.3%	3.4%	3.9%	3.6%	3.5%	3.2%	3.1%
Implied CROCI	3.6%	3.5%	3.9%	4.4%	4.2%	4.0%	4.2%	4.6%	4.8%	5.0%	5.4%	4.8%	4.7%	4.7%	4.5%	4.4%	4.7%	4.5%	4.5%	4.4%	4.3%
Implied Economic Earnings/ Economic Earnings	107%	97%	88%	104%	116%	109%	105%	107%	116%	129%	129%	119%	116%	132%	137%	130%	121%	123%	130%	138%	137%

Source: Company reports, Bloomberg Finance L.P., Deutsche Bank and CROCI. The table shows aggregate data of companies covered by the CROCI team in the sector. Data in USD as on 19 December 2016.

Past performance may not be a reliable indicator of future performance. Forward looking statements or projections are subject to risks and uncertainties that may cause actual results to differ materially. See page 2 for important information

Appendix A: Introduction to CROCI

Brief introduction to CROCI

Cash Return on Capital Invested (CROCI) is a cash-flow-based analysis which, by making a series of economic adjustments to traditional accounting data, aims to make non-financial companies comparable - regardless of industry or domicile. The main areas where the "economic data" differ from the accounting data are as follows:-

- Accounting for "hidden" liabilities – CROCI Enterprise Value (EV) includes not only financial liabilities (such as debt) but also operational liabilities (such as operating lease commitments, warranties, pension funding, specific provisions etc).
- Depreciating similar assets in a similar manner - Adjusting depreciation to reflect "economic depreciation" and effective useful economic life.
- Replacement value of assets – Inflating the value of net assets using the relevant inflator (based on the age of assets).
- Unreported assets – Systematically capitalizing cash-generative assets that are left off the balance sheet. Research and development costs and advertising are examples of such assets.

Definitions:

Enterprise Value (EV): Market value of equity (market cap), debt, and other liabilities, such as pension underfunding, warranties, leases.

Net Capital Invested (NCI): Estimated replacement value of the economic asset base, comprising the inflation-adjusted tangible assets, capitalised intangible assets (e.g brands, R&D), leases and net working capital.

Cash Return on Capital Invested (CROCI): the economic equivalent of return on equity, is a real (inflation-adjusted) economic cash return. It is the internal rate of return of gross cash flows (taxed, adjusted EBDIT) over the average asset life of the company's assets against the gross capital invested.

CROCI 5YA: Average CROCI over the past five years

Economic PE (Ec PE): is the CROCI version of the PE ratio and is calculated as EV/(CROCI * NCI) or (EV/NCI)/CROCI

EV/NCI: is the CROCI version of the price-to-book ratio and can be thought of as a proxy for replacement value or Tobin's Q at a company level. It is calculated by dividing EV by Net Capital Invested.

Free Cash Flow (FCF) Yield: represents firm level free cash flow yield on EV. It is calculated before payment of interest on borrowed capital.

Implied CROCI: Level of return implied by the market as sustainable. It is calculated as EV / NCI * Cost of Capital.

Appendix B: CROCI & Real Value

Real Value:

Economic value as calculated by the CROCI process via the adjustments to and normalisations of reported financial statements, conducted by CROCI's team of company analysts.

Notes: The CROCI process seeks to make company financial data more consistent, comparable and economically meaningful through a series of reviews and adjustments. This contrasts with more conventional definitions of "Value" that tend to be based on accounting measures such as equity or profits.

The principal indicator of Real Value is CROCI's Economic P/E. An attractive Economic P/E ratio suggests that the market is undervaluing the cash flow being produced by the operating assets, all other things being equal.

The term Real Value can therefore be used attributively to refer to companies with the lowest CROCI Economic P/E.

Real Investor:

Definition: An investor whose investments are driven principally by the careful analysis of company fundamentals, including their economic cash returns and their economic valuation. Specifically, a Real Investor has two characteristics:

1. Fundamental: any investment is informed or driven by the interplay between the cash flow generation, the capital intensity and the valuation of that company.

2. Skeptical of reported financial statements as a guide to investing: Real Investors believe that the income statement and balance sheet in a company's accounts are not necessarily designed to be helpful to equity investors, and that a synthesis of all the notes to the accounts and diligent restatement of the accounts must happen in order to render valuations comparable and meaningful; and

Real Investors look to economic value to inform investment, and believe that the reported financial statement data may not be representative of the economic reality of a company.

Since CROCI makes adjustments to financial statements in order to include all relevant information in the notes to the accounts, and to restate the accounts in order to render economic valuations, which are meaningful and comparable, CROCI may be one valuable approach.

Appendix C: Important Information on Backtest Data

Backtested performance is not an indicator of future actual results. The results reflect performance of a strategy not historically offered to investors and do not represent returns that any investor actually attained. Backtested results are calculated by the retroactive application of a model constructed on the basis of historical data and based on assumptions integral to the model which may or may not be testable and are subject to losses.

General assumptions include: The index would have been able to purchase the securities recommended by the model and the markets were sufficiently liquid to permit all trading. Changes in these assumptions may have a material impact on the backtested returns presented. This information is provided for illustrative purposes only.

Backtested performance is developed with the benefit of hindsight and has inherent limitations. Specifically, backtested results do not reflect actual trading or the effect of material economic and market factors on the decision-making process. Since trades have not actually been executed, results may have under or over-compensated for the impact, if any, of certain market factors, such as lack of liquidity, and may not reflect the impact that certain economic or market factors may have had on the decision-making process. Actual performance may differ significantly from backtested performance.

Backtested results are adjusted to reflect the reinvestment of dividends and other income and, except where otherwise indicated, are presented gross-of-fees and do not include the effect of backtested transaction costs, management fees, performance fees or expenses, if applicable.

All CROCI indices have a history that combines backtested data with live data. Inception dates refer to the first instance of a CROCI index which would have been backtested and live dates refer to the moment in time when a particular CROCI index was no longer backtested (i.e. “live”).

All CROCI performance shown reflects the returns of an index and not any investment product, portfolio management or mandated strategy.

Appendix D: Factor Definitions

Factor returns are calculated as the long-short sector neutral spread over the stated period. The construction of each factor is as follows. Each sector is, in effect, treated as a separate portfolio—and the factor portfolio goes long top quintile by factor exposure, and short the bottom quintile, combining each sector's long-short return.

Quality	ROE LTM, ROIC LTM, Cash ROIC LTM, Accruals**
Margins	Net Income Margin LTM, Gross Income Margin LTM, EBIT Margin LTM, Free Cash Flow Margin LTM
Yield	Dividend Yield LTM, Dividend Yield NTM
Value	Sales to Price LTM/NTM, Book to Price LTM/NTM, Earnings Yield LTM/NTM, EBIT to EV LTM/NTM, EBITDA to EV LTM/NTM, Free Cash Flow Yield LTM/NTM, Cash Flow Yield LTM/NTM
Small Cap	Market Cap (US$ FF)**
Low Risk	Beta – Market**, Realised Volatility**, Idiosyncratic Volatility**
Low Leverage	Net Debt to Equity LTM**, Total Debt to Total Equity LTM**, LT Debt to Equity**
Debt Coverage	Net Debt to EBITDA LTM**, EBITDA to Interest Expense, FCF to Interest Expense
Cash Liquidity	Current Ratio, Quick Ratio, Cash Ratio
Growth	1 year EPS growth LTM, 1 year DPS growth LTM, 1 year sales growth LTM
Forecast Growth	1 year EPS growth NTM, 1 year DPS growth NTM, 1 year sales growth NTM
Historic Growth	5 year EPS growth LTM, 5 year DPS growth LTM, 5 year sales growth LTM
Int'l Exposure	Foreign Sales as % Total Sales
Revisions	Sales Revisions NTM, Earnings Revisions NTM, Cash Flow Revisions NTM, Dividend Revisions NTM
Momentum	First 11 Months, First 5 Months
Reversal	Williams R, Stochastic Oscillator, Bollanger Band, On Balance Volume, Commodity Channel Index, Force Index, Relative Strength Index, MACD
Certainty	Sales Certainty NTM, Earnings Certainty NTM, Cash Flow Certainty NTM, Dividend Certainty NTM

** Denotes Signal Direction Reversed
Source: Deutsche Bank Quantitative Strategy Research

Appendix E: Sector valuations

Global Industry Group Economic P/E

	2016E	2017E
Automobiles & Components	20.9x	24.8x
Capital Goods	26.6x	26.6x
Commercial & Professional Services	28.5x	27.3x
Consumer Durables & Apparel	24.5x	24.0x
Consumer Services	31.4x	29.6x
Energy	nm	48.3x
Food & Staples Retailing	27.7x	27.6x
Food, Beverage & Tobacco	29.6x	27.5x
Health Care Equipment & Services	26.7x	23.6x
Household & Personal Products	28.4x	26.3x
Materials	33.6x	31.2x
Media	27.9x	26.9x
Pharmaceuticals & Biotechnology	20.1x	18.5x
Retailing	32.9x	31.7x
Semiconductors & Semiconductor Equipment	27.2x	24.7x
Software & Services	29.2x	25.8x
Technology Hardware & Equipment	16.6x	16.7x
Telecommunication Services	29.9x	31.2x
Transportation	25.5x	26.1x
Utilities	25.8x	27.5x

Source: Deutsche Bank. Data as on 15 December 2016

Global Industries Economic P/E

	2016E	2017E
Aerospace & Defense	26.5x	26.7x
Air Freight & Logistics	32.7x	32.0x
Airlines	18.6x	19.5x
Auto Components	15.3x	15.6x
Automobiles	25.6x	33.1x
Beverages	29.2x	27.5x
Biotechnology	16.5x	15.0x
Building Products	26.5x	25.2x
Chemicals	25.4x	24.6x
Commercial Services & Supplies	30.4x	28.9x
Communications Equipment	17.1x	18.7x
Computers & Peripherals	14.1x	14.1x
CONSTRUCTION & ENGINEERING	21.8x	21.5x
Construction Materials	27.5x	24.8x
Containers & Packaging	32.6x	29.0x
Distributors	25.7x	24.6x
Diversified Telecommunication Services	36.5x	36.9x
Electric Utilities	25.0x	26.8x
Electrical Equipment	21.2x	21.8x
Electronic Equipment & Instruments	33.3x	32.7x
Energy Equipment & Services	nm	nm
Food & Staples Retailing	27.7x	27.6x
Food Products	30.1x	27.6x
Gas Utilities	24.0x	26.6x
Health Care Equipment & Supplies	27.2x	23.4x
Health Care Providers & Services	25.7x	23.9x
Hotels, Restaurants & Leisure	31.4x	29.6x
Household Durables	23.5x	25.6x
Household Products	29.8x	27.3x
Ind. Power and Renewable Electricity Pro	21.9x	24.6x
Industrial Conglomerates	25.5x	24.4x
Internet & Direct Marketing Retail	51.7x	41.9x
Internet Software & Services	31.8x	25.8x
IT Services	27.6x	25.4x
Leisure Equipment & Products	27.8x	22.2x
Life Sciences Tools & Services	28.0x	24.9x
Machinery	34.4x	36.2x
Marine	30.6x	30.8x
Media	27.9x	26.9x
Metals & Mining	49.0x	42.3x
Multiline Retail	24.5x	25.2x
Multi-Utilities & Unregulated Power	27.4x	28.3x
Office Electronics	47.2x	35.2x
Oil & Gas	nm	48.4x
Paper & Forest Products	36.2x	39.4x
Personal Products	24.4x	23.1x
Pharmaceuticals	20.9x	19.4x
Professional Services	28.6x	27.5x
Road & Rail	25.1x	25.6x
Semiconductors & Semiconductor Equipment	27.2x	24.7x
SOFTWARE	29.0x	26.7x
Specialty Retail	28.7x	27.1x
Textiles, Apparel & Luxury Goods	25.1x	23.7x
Tobacco	28.7x	26.9x
Trading Companies & Distributors	27.4x	29.9x
Transportation Infrastructure	92.6x	67.7x
Wireless Telecommunication Services	25.2x	28.6x

Source: Deutsche Bank. Data as on 15 December 2016

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