The financial crisis and generation investment

Jonathan Mirrlees-Black

12 December 2008
A selection of Ideas Team publications

Equities

What if the future is nuclear?

Equity Research

Infrastructure

Duration, Duration, Duration

Global private sector investment in infrastructure is set to grow at 8.7% CAGR over 2010. This is a unique secular growth opportunity for European infrastructure companies as well as their equity investors.

Our analysis of the relationship between EVS/TTA and asset allocation suggests that an allocation to US or Developed markets is a low risk, high reward strategy for long-term investors. In addition, the comparison of European and Italian energy network companies provides a very effective hedge against growing involuntary risks.

Jonathan Mirlies-Black
Head Team

A further selection of Ideas Team publications

Equity Research

The Tide Goes Out

Some consequences of the credit crisis

On the eve of the big crisis it was possible to see what had been coming next.

First, the balance sheets of large financial institutions were not only characterized by low capitalization ratios and poor risk management, but also suffered from high leverage levels. This made them vulnerable to a loss of confidence when risk aversion increased.

The recent crisis and its consequences are amassing new challenges in more

The balance of risks involved and the various causes of the typical capital structure of large financial institutions have resulted in a highly leveraged, low capital position. These institutions are now facing a combination of high leverage, poor risk management, and low capitalization levels.

The market is now focusing on the new challenges facing financial institutions.

The crisis has exposed the vulnerability of financial institutions to market shocks and other shocks.

Equity Research

Pensions

Shrinking assets, growing liabilities

The exposure of pension schemes to equities is as high as 10%.

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Input from clients and counterparties on asset allocation dates in 2010, however, indicates that the risk of a further downturn in asset markets may have increased.

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Equities

Agenda

- Availability of finance for generation investment
- Other consequences of the financial crisis
- Investment scenarios
- Conclusions
Conclusions from our note - *The tide goes out*

*It's only when the tide goes out that you learn who’s been swimming naked.* Warren Buffet

- Credit more difficult to obtain, and more expensive
- Weak balance sheet a big competitive disadvantage
- Expect equity of weakest companies to be wiped out
- Expect stronger companies to cut dividends, share buy backs and capital expenditure
- Expect companies which have driven growth through acquisitions and debt funded projects to stall and de-rate
- Beware seemingly clean or net cash year end balance sheets – they are not always what they might seem
  - Our proprietary analysis of need for refinancing needs and debt covenants shows that even apparently healthy companies can have refinancing problems

*A fundamental shift in the balance of power from equity to debt holders*
Large spread between different quality borrowers

CDS Spreads – Itraxx Cross Over and European 5 and 10yr bonds

10 yr Bond yields - Euro

10 yr Bond yields - £
- Pre credit crunch spreads were 35-75bp for large utility companies
- Returned to close to these levels in summer 2008
- Credit crunch has increased these to unprecedented levels
- Price under 100bp for higher quality names
Equities

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Financing difficult, expensive, but still available

- Debt issuance is still possible in the sector:
  - GDF-Suez issued EUR2.54bn bonds on 17 and 22 October (EUR and £).
  - National Grid. Refinancing programme of £3bn year to date, with £0.5bn in September.
  - £11bn syndicated loan to EDF for British Energy acquisition. Further issuance by EDF expected.
  - Several issues over last month (see table).

- Equity investment
  - Centrica rights issue for British Energy acquisition

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Utility bond issuance, Nov 2008

<table>
<thead>
<tr>
<th>Company</th>
<th>Currency</th>
<th>Size (m)</th>
<th>Maturity</th>
<th>Spread (bp)</th>
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<tbody>
<tr>
<td>EDF</td>
<td>£</td>
<td>400</td>
<td>2022</td>
<td>270</td>
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<tr>
<td>Gasunie</td>
<td>£</td>
<td>400</td>
<td>2013</td>
<td>256</td>
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<tr>
<td>National Grid</td>
<td>EUR</td>
<td>600</td>
<td>2014</td>
<td>406</td>
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<td>GDF Suez</td>
<td>CHF</td>
<td>50</td>
<td>2012</td>
<td></td>
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<tr>
<td>Centrica</td>
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<td>750</td>
<td>2013</td>
<td>454</td>
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<tr>
<td>GDF Suez</td>
<td>EUR</td>
<td>300</td>
<td>2019</td>
<td>281</td>
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<td>Centrica</td>
<td>EUR</td>
<td>400</td>
<td>2014</td>
<td>251</td>
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<td>GDF Suez</td>
<td>CHF</td>
<td>900</td>
<td>2013</td>
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<td>GDF Suez</td>
<td>CHF</td>
<td>450</td>
<td>2012</td>
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<tr>
<td>EDF</td>
<td>EUR</td>
<td>2000</td>
<td>2013</td>
<td>299</td>
</tr>
<tr>
<td>E. ON</td>
<td>CHF</td>
<td>250</td>
<td>2012</td>
<td></td>
</tr>
<tr>
<td>E. ON</td>
<td>EUR</td>
<td>2000</td>
<td>2010</td>
<td>150</td>
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<tr>
<td>EnBW</td>
<td>EUR</td>
<td>750</td>
<td>2018</td>
<td>325</td>
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<tr>
<td>EnBW</td>
<td>EUR</td>
<td>750</td>
<td>2013</td>
<td>355</td>
</tr>
<tr>
<td>Iberdrola</td>
<td>EUR</td>
<td>1000</td>
<td>2011</td>
<td>290</td>
</tr>
<tr>
<td>Iberdrola</td>
<td>EUR</td>
<td>600</td>
<td>2015</td>
<td>365</td>
</tr>
<tr>
<td>RWE</td>
<td>EUR</td>
<td>1000</td>
<td>2013</td>
<td>216</td>
</tr>
<tr>
<td>RWE</td>
<td>EUR</td>
<td>1000</td>
<td>2018</td>
<td>255</td>
</tr>
</tbody>
</table>

Source: Bloomberg

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Utility net debt / EBITDA 2002-10

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Equities

Confidence in capital expenditure plans by some major groups

- **E.ON:**
  - “Despite the more difficult financing environment, we stand by our EUR63bn investment programme for 2007-2010”.
  - Statement by Wulf Bernotat, CEO, 27 November 2008 to Berlin conference

- **RWE:**
  - “Mid-term capex programme significantly stepped up”
  - “Current times are period of risk and opportunity”
  - Statements by Dr Rolf Pohlig, CFO, 1 December 2008 at presentation to Exane BNP Paribas

- **EDF:**
  - Acquisition of British Energy, planned investment in new nuclear, on top of existing power stations plans
  - Proposed acquisition of 50% stake in Constellation energy nuclear business
But this is not uniform

- **ENEL:**
  - EUR5-6bn in 2009-10 (previously 8bn)

- **Gas Natural/Union Fenosa**
  - Aggregate capex plan cut in half

- **Iberdrola**
  - Cutting by EUR2bn in 2009 (EUR1bn in core, EUR1bn in Iberdrola Renovables)

- **GDF-Suez**
  - “Economics of some plans could become questionable”

- Other anecdotal evidence suggests delay and cancellation to plans
Sharp fall in value of focused renewable companies

- Parent companies may provide financing for listed subsidiaries
- Capital harder to obtain
  - EUR500m capital increase at EDF EN successful but only slightly over-subscribed.
  - ERG Renew cancelled a planned increase.
- Decline in IRRs of new projects from increased capital costs and higher cost of capital.
- Limited value now placed on pipeline
- Expect capex cuts, particularly in smaller players
- Smaller players likely to sell assets to allow developments to be financed.
- Risk for pure generators higher than integrated utilities

- Weighted average cost of capital for European integrated groups is now 7.2-9.9% nominal, up from 6.5-8.0% 6 months ago.

- Risk for independent generators is higher.

- Required nominal returns even now are lower than is often suggested.

- But deflation expectations could mean expected real returns have increased dramatically.
Falling capital costs

- Construction costs now under downward pressure

- Commodity price falls likely to lead to significant downward pressure on prices following sharp rise in 2007-08

- We estimate nuclear construction costs at EUR2200/kW (down from EUR2800/kW, but higher than EUR1900/kW a year ago).

- CCGT cost estimate down to EUR550/kW (previously EUR750/kW).

- Cancellations would lead to further downward pressure, but no evidence of this yet (Alstom reported 2.5 year backlog recently).
Falling input commodity prices
Electricity price falls across the forward curve, with increased volatility from lower liquidity.
## Summary of change in factors affecting new investment

<table>
<thead>
<tr>
<th>Factor</th>
<th>Short term impact</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability and cost of finance</td>
<td>Negative</td>
<td>Finance still available for high quality names. For other companies, capital available but at much higher price.</td>
</tr>
<tr>
<td>Cost of capital</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>Capital costs</td>
<td>Positive</td>
<td>Evidence of impact of falling commodity prices beginning to have an effect on prices</td>
</tr>
<tr>
<td>Prices</td>
<td>Negative</td>
<td>Prices could be higher in the medium term if generation investment postponed.</td>
</tr>
<tr>
<td>Demand destruction</td>
<td>Negative</td>
<td>Depends on depth and duration of recession. Cumulative impact of 2 year recession 7% of GDP compared to previous “Business as usual” scenarios.</td>
</tr>
</tbody>
</table>
What hasn’t changed?

- Long term oil prices (?
  - Exploration activity has collapsed as has development spending.
  - Supply constraints likely to be met quickly when there is an upturn

- Need for new investment in power generation to replace retiring capacity

- Stated desire by governments to meet CO2 reduction targets
  - Affordability of current policy not questioned by government today…
  - …but is current suite of policies sustainable?
Equities

Generation capacity needs

Source: RWE

Additional demand
300,000 MW until 2020
Replacement need

in GW\(^1\)

2005 2010 2015 2020 2025 2030

Wind

Coal, oil, gas

Nuclear

Hydro power

2004
Wind 4.8%
Coal, oil, gas 58.0%
Nuclear 18.9%
Hydro power 18.2%

Source: RWE
Generation capacity needs in Europe to 2020

Source: European Commission, Platts
Plans for generation investment in Europe

Source: European Commission, Platts
<table>
<thead>
<tr>
<th>Scenario</th>
<th>Major international groups</th>
<th>Other / independent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benign</td>
<td>Increase with capacity mix as envisaged by EC exploiting lower capital costs</td>
<td>Increase with capacity mix as envisaged by EC</td>
</tr>
<tr>
<td>No impact</td>
<td>Proceed as planned</td>
<td>Proceed as planned</td>
</tr>
<tr>
<td>Limited cancellations</td>
<td>Proceed as planned</td>
<td>Some postponement / cancellations</td>
</tr>
<tr>
<td>Significant cancellations</td>
<td>Some postponement / cancellations of later projects</td>
<td>Significant postponement / cancellations</td>
</tr>
<tr>
<td>Severe Crisis</td>
<td>Postponement / cancellation of early and later projects</td>
<td>Sustained limited availability of capital forces significant level of cancellations</td>
</tr>
</tbody>
</table>
Likely implications

- Investment is needed and capital is available from well financed companies
  - When capital markets open continuously, utilities likely to be the first to benefit

- Financially stretched companies will:
  - Cut capex
  - Or make asset disposals to allow necessary capex to proceed

- Opportunistic M&A activity
  - Acquisition of financially distressed companies
  - Acquisition of non-strategic assets

- Aggregate investment in physical assets to fall or be postponed
  - Likely to affect all fuels, especially given uncertain policy environment
  - Except for nuclear when capex spend is either committed or currently in early planning stage

- Electricity market to become more concentrated
  - Major utilities will grow organically at expense of smaller players

- Policy environment
  - Increase focus on evidence?
Cumulative nuclear capacity in France, 1977-

Source: Exane BNP Paribas analysis of company data
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