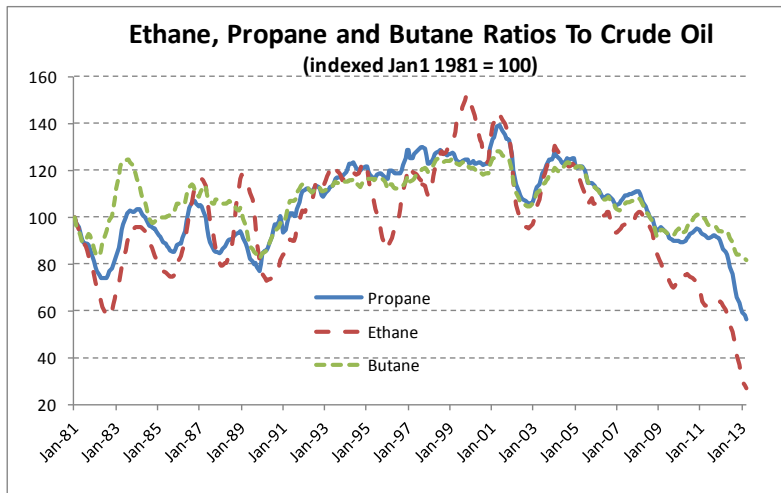


US Basic Chemicals Economics – Are you Sharing in the Love

Over the last 6-9 months NGL (Natural Gas Liquids) prices have fallen to levels that represent notional break-even economics for extraction from natural gas. At the same time natural gas prices bump along break-even F&D economics in the US. This is providing extremely advantaged feedstocks to anyone who has the ability to consume them. This is particularly the case for US basic chemical producers at a time when global crude oil prices have been rising, effectively penalizing everyone else. This is reflected in the profits we are seeing from the US focused ethylene producers, most notably WLK, but also AXLL and LYB on the public side and Nova Chemicals on the private side.

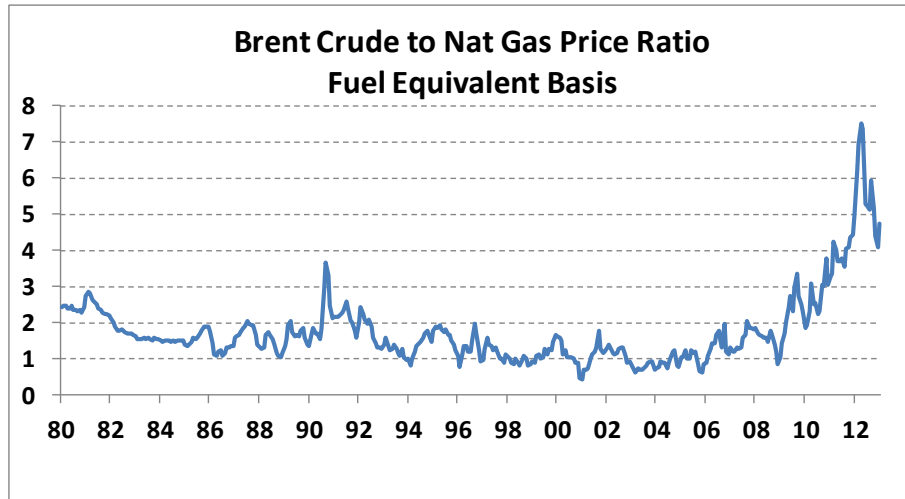
While this may be sustainable for some time, it is hard to see how it gets much better. The more interesting question who else can tap into this opportunity, and how quickly as today all of the benefit of surplus NGL's in the US is accruing to the ethylene producers – with margins close to 50 cents per pound (\$1100 per metric ton).



Natural gas could go lower for a short period, but below \$3.00 per MMBTU the consensus view is that we would see further production cutbacks, and very limited new investment. Current forecasts for this year are in the \$3.50 neighborhood. Global crude oil pricing cannot get much higher without a geopolitical event that causes broader economic concerns and perhaps curtails demand or without

resurgence in economic growth that would likely lift natural gas prices as well. Chemical stocks pricing in further profit growth from recent (2H 2012) levels may disappoint unless the companies have more capacity available to exploit the economics. New capacity at WLK will help 2013 and 2014 earnings, and the implied earnings growth helps support the higher current multiple. LYB has recently announced new capacity for 2015/2016, but everything else is more speculative and comes on stream in 2017 or beyond.

But the low prices and particularly low relative prices today will encourage significant exploratory investment from anyone who thinks that they might be able to substitute an oil derived products, whether it is plastic, diesel, gasoline or fuel oil, for a natural gas derived fuel. The incentive to look at



alternative feedstocks or alternative fuels has never been more significant for NGLs, and remains compelling for natural gas itself. Things will change – the questions are; how quickly and will they be enough to impact the price differential we see today?

