The Situation for LNG Risk Professionals

- Rapidly growing trade activity with increasing challenges to effective risk management
  - Regulatory uncertainty
  - Market transparency weak
  - Forward curves not reliable
  - Trade platforms lack liquidity
  - Limited hedge instruments
  - Etc.
- Very large transaction valuations make effective risk management a critical need…
  - Collateral
  - Trade finance

- LNG Risk professionals wish to share knowledge to develop best practices
- LNG Risk professionals wish to have impact by creating constructive change initiatives that will improve their situation
- This is a classic situation where participation on the the CCRO platform can have the greatest value

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Anderson:

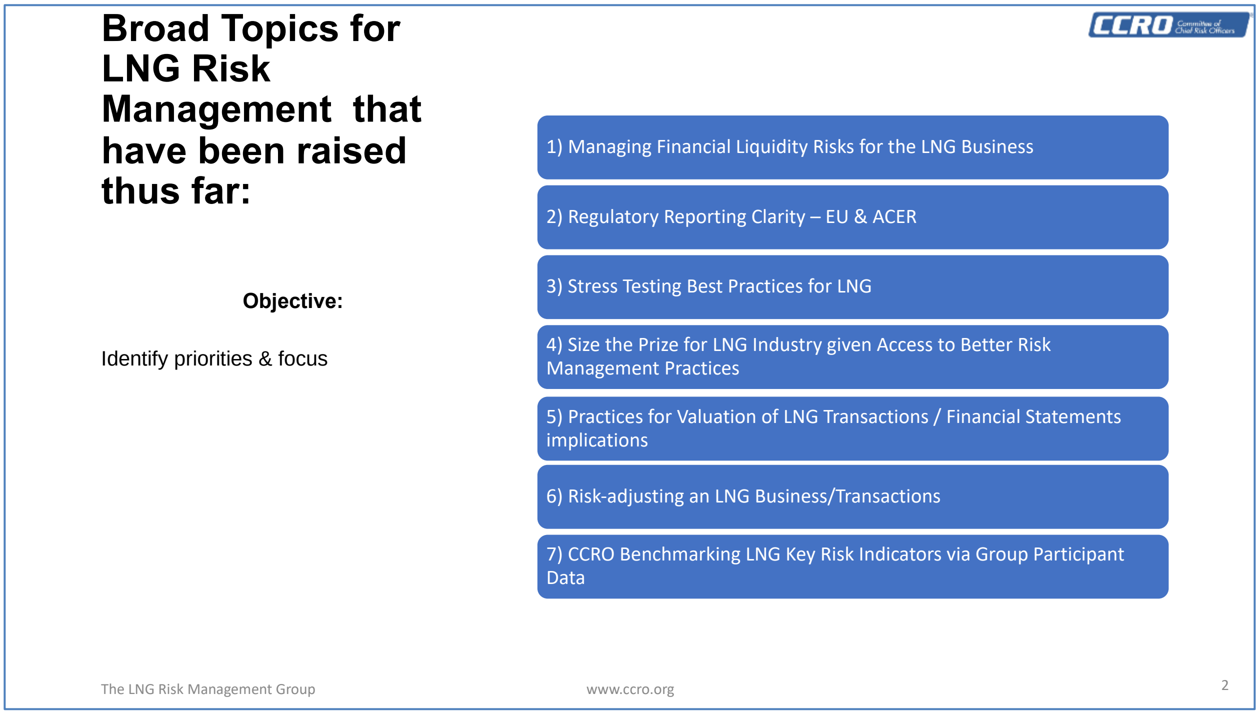
Okay, let's walk through the LNG industry situation today, and just what our LNG working group discussions are developing to address it.

Bob Stibolt's overview that we just heard painted a clear picture of a rapidly growing LNG industry with dramatically increasing trade activity. Well, this in-turn creates many challenges to risk managers facing direct or even indirect exposures to LNG. So, it's not surprising that I've received a lot of requests regarding ways that we CCRO Members might work together to advance risk management of those LNG exposures.

I've received a lot of requests regarding ways that CCRO Members might work together to advance risk management of LNG exposures.

What's the situation that has prompted this initiative? Well, there's a lot of regulatory uncertainty. Market transparency's not good. Forward curves are either non-existent or not representative. The numerous trade platforms that are out there lack liquidity. Plus, there are very limited hedge instruments available to choose from.

So, despite the size of this growing LNG market that Bob was just showing you, there remain huge gaps. Gaps in terms of resources and information that's needed for a risk manager to be effective here. However, this situation also means there are great opportunities for the CCRO Member companies participating in our initiative.



Anderson:

So, on the second slide, these are the topic areas that we were currently looking at developing some CCRO deliverables. Each of these seven is fascinating, I think. I'm hoping that many of you do too.

The list of course is changing as we clarify where we want to focus, but let's go through each of these so that you might get a sense of where you might personally want to get involved…

We hope you'll join us in this effort!

For more general information about this initiative, and who's been involved thus far,

Please check out the landing page at: https://www.ccro.org/lng-trading-risk-management

1) Managing Financial Liquidity Risks from the LNG Business ?

- Margin@Risk – a PFE-like parameter?
  - Compromise methods given the limitations on data & fwd curves?
  - Practical implementation for an LNG portfolio – are there resources available?
  - …
- Cash requirements of margins & hedging = financial liquidity risk ?
  - …
- Choosing transactions: Is there a trade-off between margin risk versus credit risk ?
  - …

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Anderson:

First of all, most of us by now know that the financial liquidity risks to companies in the business of transacting in LNG are pretty unbelievable. I've been given some examples of the amount of margin or collateral requirements that these massive positions can create. I can see that this could be an existential threat to a company in some cases.

So, our LNG group is exploring what could be done to advance the understanding of financial liquidity risk associated with an LNG portfolio and what methods might make measurement and mitigation more effective. Is there attention that we could bring to methodologies or even specific mitigation instruments that would reduce the collateral burden?

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You can see here a few examples of related concepts. I know these topics are areas where CCRO members have historically enjoyed discussing alternatives and exploring potential solutions. Financial liquidity risk has for a long time been a focus area for us.

Check out some of our past materials on this here…

2) Regulatory Reporting?

- Clarity around current regulatory requirements (ACER)
  - Common understanding of requirements?
  - Do we perceive this as beneficial?
- Interest/possibility in developing guidance proposal for submission to EU?
- Alternatively creating a new CCRO developed & produced benchmark?

Anderson:

Number two is regulatory reporting.

I've recently found that members in Europe share an interest in having the CCRO's collaborative efforts investigate LNG transaction reporting requirements in Europe. Apparently, the EU has established a requirement to report LNG transactional details to a company called ACER. However, it's not entirely clear which transaction types and just what transaction details are required for reporting compliance.

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This all sounds very familiar to me. Back in 2005, there emerged an almost complete lack of confidence in the way that trading companies were reporting gas & power transaction information to price reporting agencies like Platts & NGI. This lack of market confidence led to a real crisis in market liquidity as no one was confident in the prices that they were having to settle trades at. So, our members worked together and published standards for price reporting practices. They were adopted by PRAs and even the regulator, the FERC. Today, they are almost considered common sense, with all reporting agencies following them.

Similarly, here, companies are asking, "Can we get together and come up with a clear definition of what's supposed to be reported to ACER? And can we also look at why?" The current request seems to be for everything, including very long-term transactions that are not actively traded. Could this be an overreach? To those I've spoken with, current practice does not seem well thought-out. It just doesn't make sense to the companies involved.

This is a great example of an appropriate area for CCRO to represent the industry perspective and interact constructively with all the parties involved. We could really gain traction with this if we can get members behind it.

In fact – some members have suggested we include exploration of a new CCRO initiative to establish benchmarks using data contributed by member companies. Benchmarking is another area we have past experience with. We'll be discussing more details about this in future virtual CCRO discussions. So, join us in this group to find out more!

3) Stress Testing Best Practices for LNG ?

- Could we host a survey of current "stress test practices" as a basis for initial discussions ?
  - Eg. Thoughts on questions: What factors are included in your stress tests? Are they evaluated together or in separate runs? What historical scenarios do you routinely run?
- …etc.
- What can be done with stress tests – for practical impact on risk mgt ?
  - Could similarly ask survey participants for thoughts: Do you use stress tests as a basis for limits? Where (with whom) are the results of stress tests discussed? Are stress test results treated as risk capital measures?
  - …etc.

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Anderson:

Stress testing methods is our number three example of areas our LNG group could delve into.

Most of us know how valuable that straightforward stress test can be when things get complicated. Sometimes a look at something simple like stress testing can deliver a message in a way that's most understandable to senior management, and most importantly, is actionable.

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Perhaps we can develop some scenarios to consider for stress-tests. In addition, there may be some best practices for measuring and/or reporting stress test results that members have discovered from experience? All of this can be shared inside the CCRO for the development of industry recommendations in this area.

Check out some of our past work regarding stress testing here…

4) "Size the Prize" for LNG Industry

Given Access to Better Risk Mgt Practices

- What benefits would the LNG industry gain if risk management were more effective?
  - (We can use the legacy CCRO paper on clearing as an example)
- Identify the current roadblocks to risk management in LNG
  - (vs. Nat gas or crude for example…)
- What solutions could be envisioned?
- Would yield what benefits ?
  - Release how much risk capital currently tied-up where?
  - Favorable impact on margins? (cash)
  - Subsequent increased liquidity would
    - Reduce estimated holding periods reqd for risk measures?
    - Advance LNG option markets ?
    - (more flexible hedging strategies)
  - Could increase willingness to invest?
- What role does the regulator play?

Objective:
CCRO publishes a white paper overview of these benefits identified.

Doc is a catalyst for new initiatives and to motivate industry to take associated constructive action…

Anderson:

Potential exploratory initiative number four is "sizing-up the prize".

It often helps regulators to understand and appreciate why industry standards can be a very beneficial thing, yielding large scale benefits for their area of oversight. The CCRO as an industry group could conduct some research to provide high-level perspectives on the upside for our industry given recommendations or standards in-place, versus the current scenario lacking such guidelines. One example of our work of this broad nature, was our paper on Market Clearing in the Energy Industry.

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Typically, this type of work takes shape with a structure something like "Here's how we are doing things today and this is the dollar amount that's either at risk or that's otherwise tied up and unavailable for industry to invest in business growth. However, if we can follow these industry recommendations, it will release this money or perhaps it will reduce the burden on government to guarantee things. We can bring in new risk mitigation instruments, set collateral guidelines, maybe a set of recommendations to implement.

In any case, there's a lot we can do to quantify what's in it for everybody if the industry can come together and improve itself in the long run.

I am hoping that some of our Advocate members might be interested in helping with this LNG market research, even contributing some work they may have already done. The research itself does not have to be a burden for members, it's more critical to get members to rally around the recommendations that emerge.

5) Emerging Practices for Valuation of LNG Transactions/ Financial Statements implications

- Current Accounting treatment and practice/ Desire to change?
- Pressure to move long term transactions into the m-t-m category
- Forward curve robustness falls-off after 1-year forward
- Illiquid markets make position management a challenge
- What needs to happen to facilitate better marks?
- How can we help advance things?

Objective:
CCRO publishes recommendations, market benchmarks?

…

Anderson:

Number five was LNG transaction and LNG portfolio valuation.

Some of the larger LNG companies are being pushed to mark to market very long dated, sometimes complex transactions. Complicating this is the fact that there may be no relevant forward curve, or certainly not a robust one.

This goes back to the mark to model issues that we've dealt with in past work. Perhaps we could leverage some of our past work to establish best practices for these valuations? Maybe not promote any specific detailed methodology, but rather best practices or characteristics for valuation in these challenging transactions that lack a robust forward curve or other critical data parameters.

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Perhaps we can bring industry advocacy to get better forward curves going? CCRO member Abbax is certainly trying, with its LNG exchange in Singapore. This would provide a physically deliverable contract that could help with risk measurement and subsequent valuation practices.

In any case the challenge here is daunting for the risk officers in these companies. A big swing in mark to market valuation because of either a misstep in valuation practices or in underlying data like volatility or forward prices could have massive implications for reporting of earnings.

This is again, an industry-wide issue.

As a reference, valuation practices were subject for one of the CCRO's original founding white papers…

6) Risk-adjusting an LNG Business

- Can we establish a more objective framework to build a perspective on RAROC?
  - Avoid the term RAROC to aide acceptance?
  - We do not want a purely academic initiative – needs to be practical use
- Maybe objective #1 is: Can we "get a handle" on what the Invested Capital of the LNG business includes? (or are we studying only the LNG trading business?)
- Then: The returns side is easier
- Finally: How do we risk adjust the returns?
- Economic Value – is "challenging" for LNG given poor valuation techniques available
- CCRO has access to plenty of recent work on the framework
  - This might establish a basis for us to create an LNG risk practitioner's framework that is more practical…

Potentially for discussion:
The fundamentals…

= ____________

( )

Economic Value includes a charge for the use of Invested Capital

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Anderson:

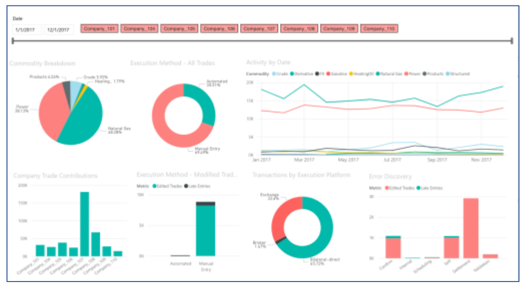
Number six concerns risk adjusting an LNG business. This involves trying to get a higher-level view of the capital demands of the business, for the purpose of accurate measurement of true returns. Risk adjustment can be critical when thinking about capital allocation. Such is the case when you're facing choices regarding a portfolio of transaction opportunities, a situation every energy company faces, not just those in LNG.

Risk adjustment can be critical when thinking about capital allocation.

There are some helpful guidelines around things we'd be looking at for prospective transactions here. Things like RAROC, economic value, and so on. We'll be trying to get a handle on "What is the invested capital associated with these big transactions?" so that companies understand the performance issues of their LNG business alongside other businesses.

7) Benchmarking LNG Key Risk Indicators via Group Participant Data

- What data might the CCRO collect to create useful LNG KRIs, for participants to benchmark themselves against?
  - Transaction counts? (market liquidity KRI)
  - Volumes by market? (concentration/liquidity KRI)
  - Volumes by product? (concentration/liquidity KRI)
  - …etc.
- If data is too sensitive…how might similar info be disguised before submitted?
  - Eg. Submit each metric as a volume % of portfolio. Cannot be attributed to any participant that way…even without aggregation.
- Proof of concept seen in CCRO late/edited trade benchmarks →
  - Proved impactful on internal practices



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Anderson:

Benchmarking is my favorite, always. Number seven.

There are some key risk indicators that we'd like to look at developing with the help of member data. This could be similar to [the late and edited trades data that we're gathering and publishing] as anonymous benchmarks.

In LNG, we'd be asking participant members to first agree on what the needed KRI metrics are and then what information would they like to share to create them.

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The CCRO's role is to aggregate the contributed member data, and provide benchmarks that are anonymous, but provide a clear and otherwise unavailable insight into where you stand relative to your peers. Typically, CCRO benchmarks are used to drive internal change initiatives that will improve risk management practices.

So, this should be very interesting for the group to investigate, and I hope you all will want to get involved in this asap.

So that's my overview. I want you guys to see that this working group, which is just coming together, has some exciting challenges ahead.

Join us and be a part of the solution!