LNG Funding – The Next Chapter

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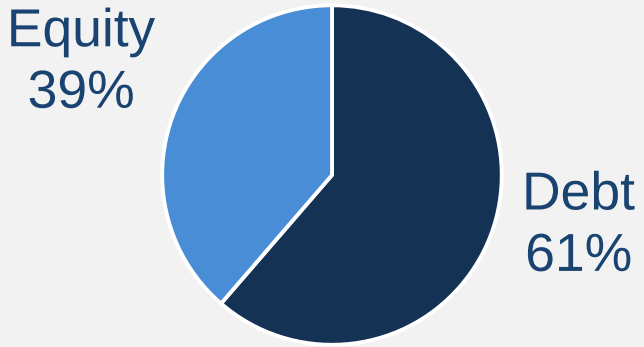
Strong LNG demand growth will entail significant capex for liquefaction capacity additions globally

- LNG trade estimated to grow at a CAGR of about 4% during 2018-40 to 757 billion cubic meters (bcm)
- LNG bunkering projected to increase at a CAGR of 11% during 2025-40 to reach 49 bcm
- Share of LNG in global gas trade expected to increase to almost 60% by 2040 (42% in 2017)
- An estimated US$35 billion average per year required between 2018-40 to develop adequate LNG infrastructure

Source: World Energy Outlook 2018, International Energy Agency, 2018

Debt has been the mainstay of capital investment in LNG liquefaction projects during 2008-18

Total capital investment = ~US$196 billion (2008-18)*



The US alone accounts for over a quarter of this capex.

Russia, Australia and Canada account for a further ~55%.

Source: EY analysis of IJGlobal transaction data

*Refers to the total debt and equity financing received for pre-FID, post-FID and onstream LNG export projects; does not include LNG shipping and regasification infrastructure

Ratio of debt funding for LNG projects has seen an overall reduction over the last decade

- Share of debt has declined overall over 2008-18 and has continuously declined annually since 2015.
- The share of debt has fallen below the overall average of 61% in 2008-18.
- Recent LNG liquefaction Final Investment Decisions (FID) have relied on equity.

Source: EY analysis of IJGlobal transaction data

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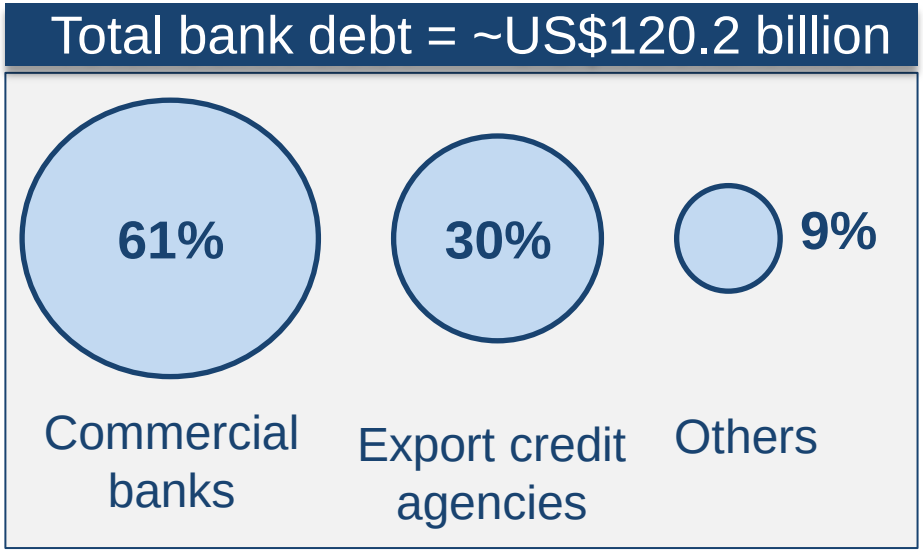
Commercial banks lead in LNG project finance debt during 2008-18



Debt sources

- Multilaterals (development banks)
- Bonds
- Sovereign wealth funds
- Letter of credit
- Working capital facility
- Sponsor co-loans

Source: EY analysis of IJGlobal transaction data

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Global funding patterns for LNG liquefaction projects highlight preferences for debt over equity

- LNG export projects with high equity funding – Canada, Yemen and Mozambique – are majority owned by Integrated Oil Companies (IOC).
- Peru LNG with a 46% equity share of financing has 20% IOC ownership.
- LNG projects in Asia-Pacific demonstrate a significantly high preference for debt.
- Large Australian LNG export projects, though IOC-owned, are debt-funded.

Source: EY analysis of IJGlobal transaction data
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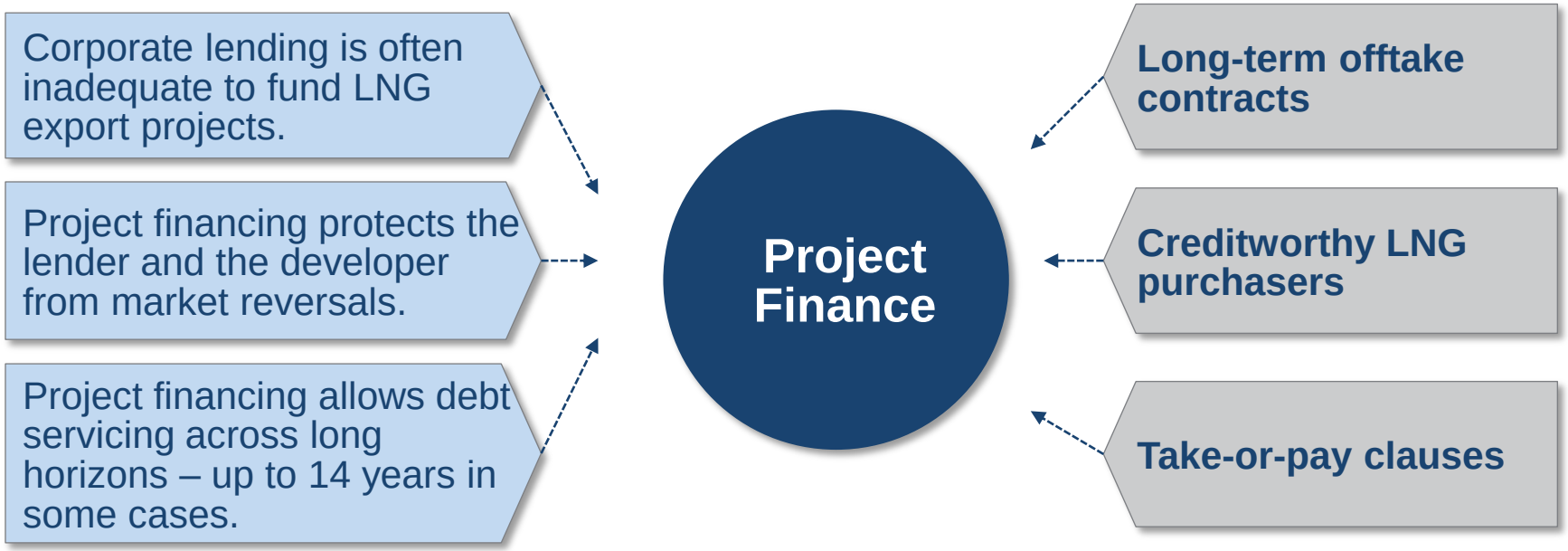
Substantial equity investment from developers is required to secure pre-FID project financing



Source: Haynes and Boone, EY analysis of publicly available data

Asian and other markets are increasingly viewing LNG as a commodity market amid a transition

Buyers

Buyers seek to benefit from spot markets through smaller contracts, flexible contracts and hub-linked pricing

Sellers

Producers want to secure cash flows and attract financing from long-term contracts, take-or-pay clauses

Financiers

Financiers seek to manage risk exposure and prefer LNG projects with long-term offtake agreements, creditworthy buyers

Source: World Energy Outlook 2018, International Energy Agency, 2018

Changing contract structures are leading to greater need for LNG export project developers to price and absorb increased market risk

- Reducing contract length
- Decreasing contract volumes
- Increasing spot buying
- Removal of destination clauses
- Shift from take-or-pay contracts

Buyers' demand for flexibility is not currently supported by a global trading mechanism, putting financiers in a tight spot.

Source: *Shell LNG Outlook 2018*, Shell; EY analysis

Financiers will seek to share more of the risk with developers (implying a greater share of equity funding)

- Increased market risk
- Constrained debt funding

Need and opportunity for equity funding to bridge the capital requirement gap

Equity sources

- Owner's equity
- Equity investment by offtakers
- Private equity
- Venture capital
- Infrastructure funds
- Pension funds (public/private)
- Infrastructure funds

Source: *Equity Set to Play Bigger Role in LNG Financing,* 27th World Gas Conference, June 2018; EY analysis

Risk and reward considerations determine the scale and tenure of equity investors

Owners, offtakers and private equity	Undertake development, construction, operational and markets risks
	Seek high return on investments
Venture capital	Undertake construction risk and some operational risks
	Seek high return on investments
Pension and infrastructure funds	Undertake some operational risk
	Seek steady returns on investments

Source: *US Liquefaction Sponsors Continue To Enlist Private Equity Investment,* Poten & Partners, October 2017*; Infrastructure Investments for Insurers,* 2015, EY analysis

LNG project developers with large balance sheets – oil and gas majors and national oil companies – are best placed to assume project lifecycle risks

- Access to low-cost capital
- Low equity hurdle rates
- Capacity to allocate adequate capital

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- Increasing stake of oil and gas majors in LNG export projects
- Investments and LNG export project FIDS largely driven by majors
- Acquisitions of LNG specialists and LNG assets by majors

Due to the complexity and capital intensity involved in production and supply, oil majors have a key role to play in LNG capacity generation.

Source: *End Market Series: Sizing the LNG opportunity for US Industrial companies*, UBS, September 2018; *Global LNG: The glut abates, the crunch awaits,* HSBC, March 2018; EY analysis

Oil and gas majors have added the most liquefaction capacity

Majors'* share of natural gas production fell marginally during 2000-17

18% in 2000 to 16% in 2017

**Majors = Integrated oil companies and large independents*

Their share of liquefaction capacity has almost doubled during the period

19% in 2000 to 35% in 2017

**Majors = Integrated oil companies and large independents*

The share of Asian National Oil Companies (NOC), African NOCs, Asian utilities declined in that period; Middle East NOCs held their share at 17%

Source: *World Gas and Renewables Review 2018,* Eni, 2018; EY analysis

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