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Corporate & Investment Banking

Energy Lending After the Crash

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Even before the March/April price crash the shale revolution was changing the landscape of energy finance

- Transformative technology
- Rapid growth masked poor returns
- From excess capital to de-capitalization
- Valuations declined materially
- Investors unable to exit and lenders losing money

What Happened?

Shale's New Risks

Conventional Drilling	Shale Revolution
Diversification	"Pure play" stories
Sequential drilling	Advent of pad drilling
Lower upfront investment (drilling & completions, working capital)	Higher upfront investment (drilling & completions, working capital)
Shallow decline curves	Higher initial production("IP") followed by rapid decline
Predictable production	Unexpected production outcomes
Multiple production horizons from a single well bore	Single production horizon from a single well bore

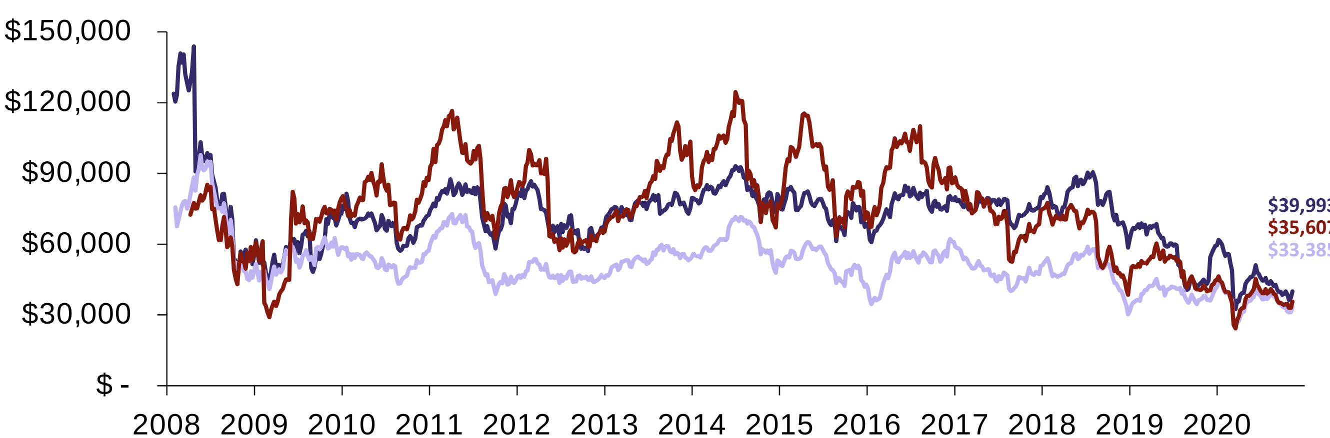
Then vs. Now

	Then	Now
Capital	Cheap and plentiful	De-capitalization
Investor Objectives	Growth	Returns/Spend within cash flow
Valuation Driver	Robust growth potential	Sustainable cash flow
Investor Strategy	“Build and flip”	Operating model
Lenders	Active, new participants	Reduced capacity, participants

What this has Meant for Capital Providers

- Evolution of shale risks was insidious in nature
- Investors and lenders worked to keep pace but did not evolve as fast as the technical, operational and financial risks of shale
- Investors and lenders based decisions on overstated potential
- Disappointing performance increased perceived risk of Exploration & Production (E&P)
- Price crash amplified risks and accelerated change

TEV / FY2 Production ($ / Boe/d)



Avg.	Big 3	Legacy	Permian
Current	$39,993	$33,385	$35,607
YTD	$46,341	$36,410	$38,032
1 Year	$47,905	$36,632	$38,718
3 Year	$63,548	$42,660	$52,999
5 Year	$68,674	$45,702	$65,500
10 Year	$72,445	$50,275	$76,467

Source: Company filings, FactSet | Market data as of 11/13/20
Note: Big 3 includes COP, EOG, OXY; Legacy includes: APA, DVN, HES, MRO, OVV; Permian includes: CXO, FANG, PE, PXD, XEC, WPX

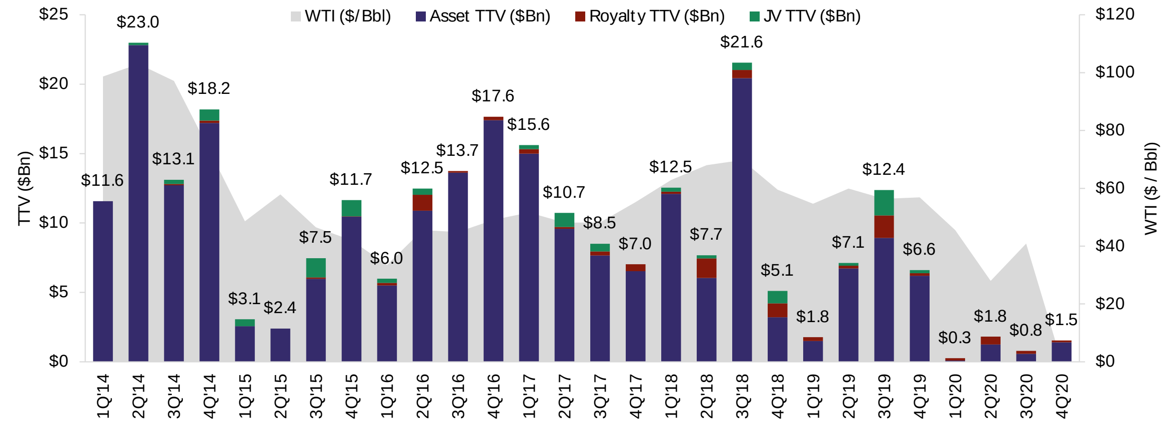
Acquisitions & Divestitures ("A&D")

Themes

- Critical to smooth functioning of capital and bank markets
- Use similar Discounted Cash Flow ("DCF") model as the bank borrowing base model
- Historically ascribed value to all reserve categories
- Key changes:
  - Higher discount rates
  - Low/no value ascribed to non-producing
- Corporate consolidation has accelerated as asset sales declined

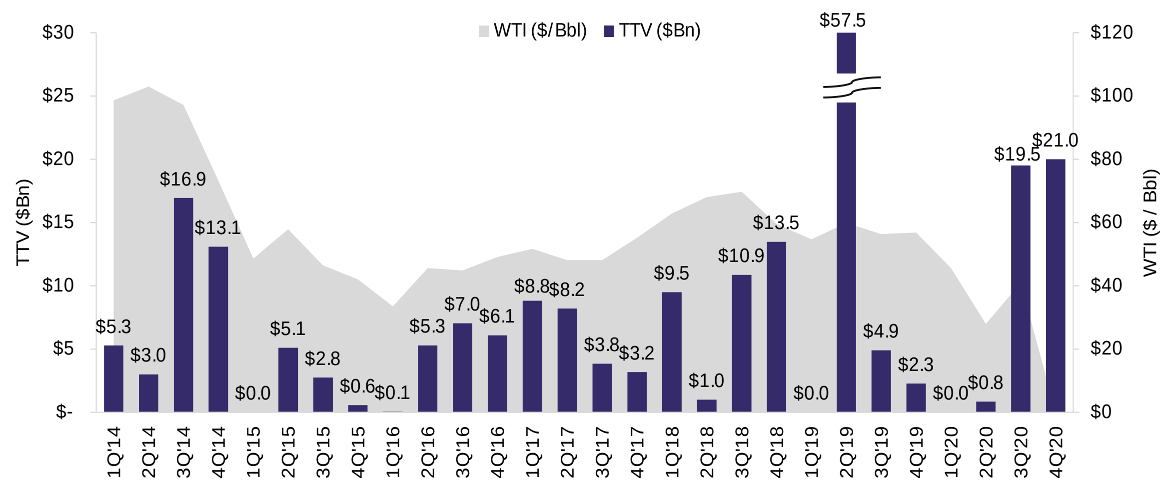
A&D Deal Volume Through Time

2014 TTV	2015 TTV	2016 TTV	2017 TTV	2018 TTV	2019 TTV	2020 YTD TTV
$65.8 Bn	$24.6 Bn	$49.9 Bn	$41.9 Bn	$46.9 Bn	$27.9 Bn	$4.4 Bn



M&A Deal Volume Through Time

2014 TTV	2015 TTV	2016 TTV	2017 TTV	2018 TTV	2019 TTV	2020 YTD TTV
$38.3 Bn	$8.4 Bn	$18.5 Bn	$24.0 Bn	$34.9 Bn	$64.7 Bn	$40.3 Bn

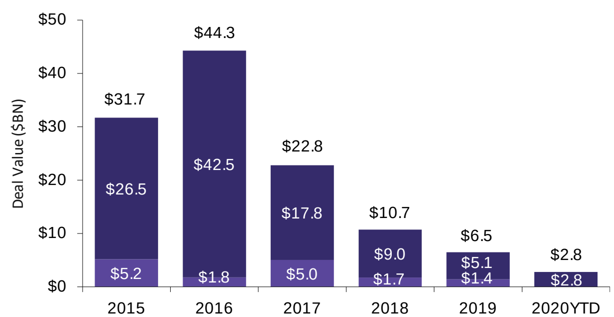


Source: Enverus

Capital Markets

- Broad market access fueled shale growth, but poor returns caused investors to pull back
- Price collapse turned this into a stampede
- Debt markets have selectively reopened depending on sector and size
- Equity markets remain challenged for new issuances

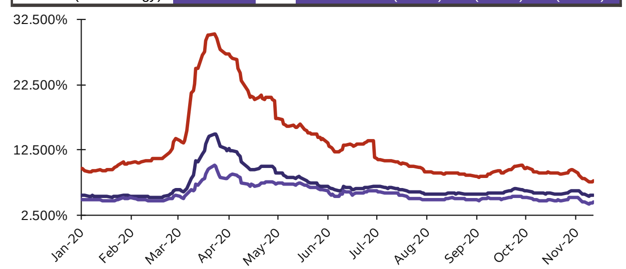
Energy Equity Issuance (since 2015)



	2015	2016	2017	2018	2019	2020YTD
Total FO's:	83	107	53	32	11	10
Total IPO's:	9	5	15	7	4	0

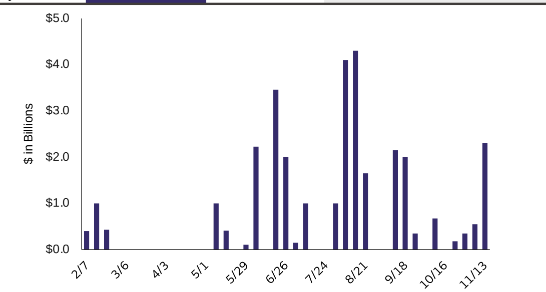
Select High Yield Indices

	Current	Change: 1-Week	Since 4/1	YTD 2020	YTD 2019
HY Midstream Index	5.64%	(0.12%)	(12.68%)	(5.64%)	(1.03%)
HY E&P Index	7.79%	(0.27%)	(27.31%)	(9.89%)	0.70%
HY Index (Excl. Energy)	4.61%	0.13%	(8.47%)	(4.83%)	(2.32%)

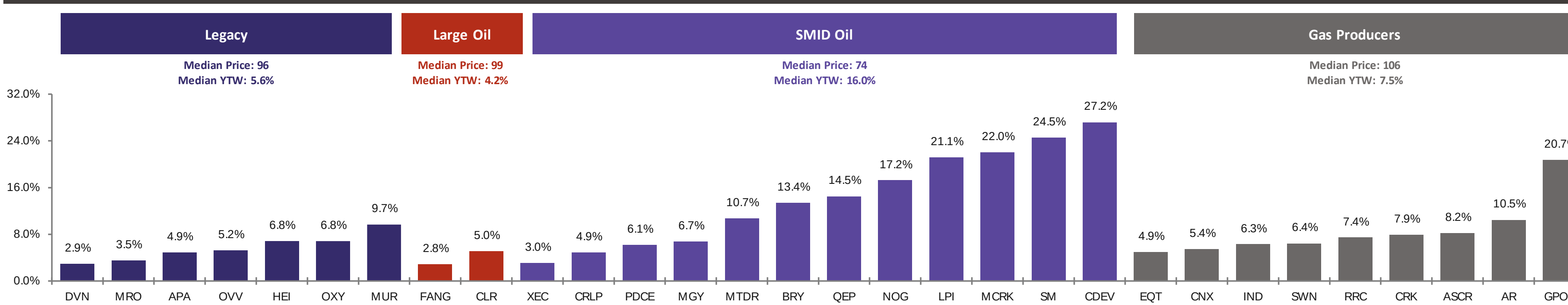


High Yield New Issue Market

	Current Week	2020 Weekly Avg.	Aggregate: Since 4/1	Aggregate: YTD 2020
Weekly Volume	$2.3	$3.3	$30.0	$43.8



Benchmark Bond Yield (in %) as of 11/12/2020

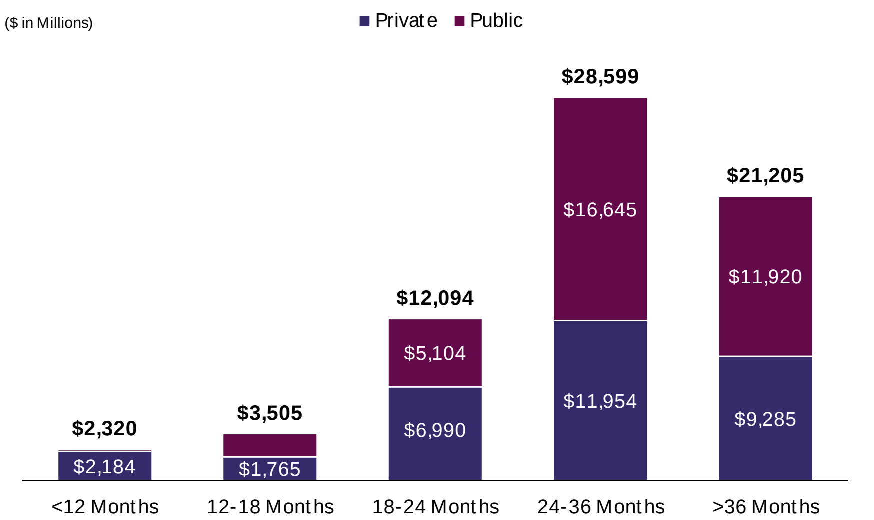


Source: Wells Fargo Securities, Bloomberg, Capital IQ, FactSet, Public filings | Market Data as of 11/16/2020

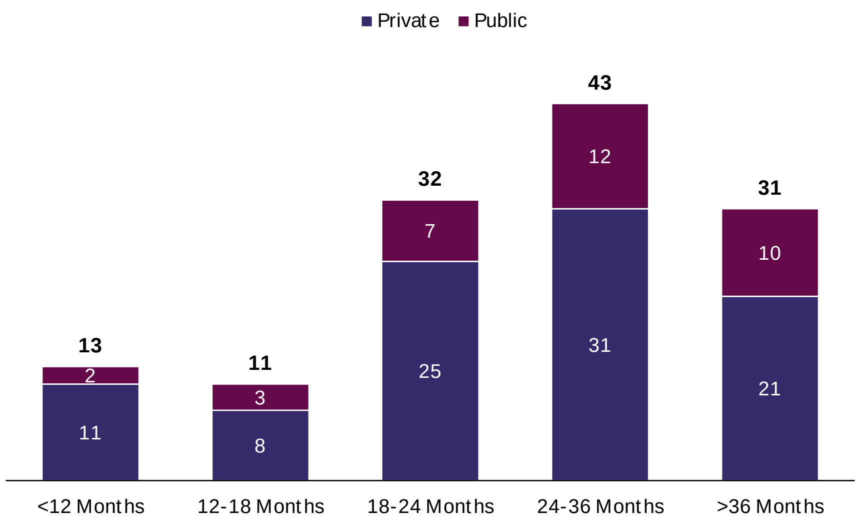
Bank Market

- Shale growth drove a transfer of development risk to banks
- Primary and Secondary sources of repayment have been impaired
- Looming maturity wall in 2022-2023, with smaller/private operators highly exposed to refinancing risk
- Market has sought compromises to avoid crystalizing losses

Maturing RBL Borrowing Bases by Amount



Maturing RBL Borrowing Bases by Count

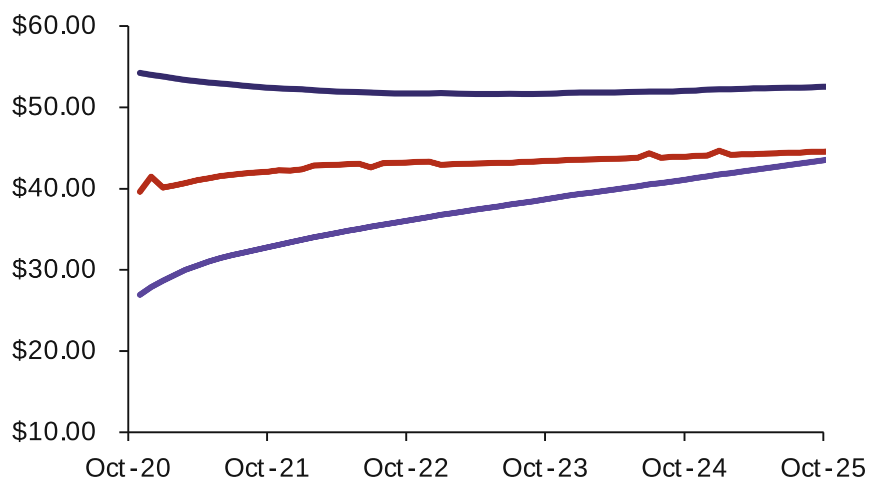


Where are We Going?

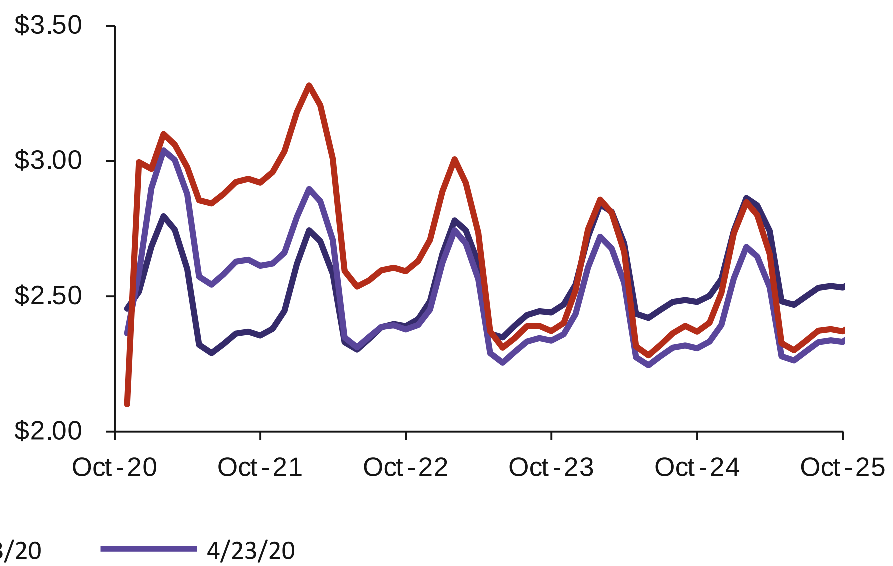
Fall Borrowing Base Redetermination Season

- Price decks higher
- Completion of DUCs offsetting production runoff
- Hedge value declining
- Net result: borrowing bases approximately flat

WTI Forward Strip ($/BBL)



HHUB Forward Strip ($/MMBtu)



Source: FactSet | Market Data as of 11/13/2020

Where are We Going? (*cont.*)

Lenders must have much better visibility into the cash flow that will repay loans

Reduce Price Risk	Higher hedged volumes
Reduce Development Risk	Lower reliance on non-producing reserves
Reduce Production Risk	Improved diligence and credible challenge of engineering risks
Prioritize Debt Repayment	Focus on free cash flow generation by all investors, including banks
Enhanced Assessment of Collateral Value	Consideration of market value in facility sizing
Align Structures to Company-specific Risks	Less reliance on 'one-size-fits-all' structure/covenants

Where are We Going? – Final Thoughts

- Shale revolution a secular change for lending and investing in energy
- Energy transition and ESG are reshaping how capital is deployed in energy
- Oil and gas however, will remain the dominant fuel
  - Renewables will be a growth wedge, but not big enough for the foreseeable future to be the primary energy source
- At some point perceived value will overcome fear and investors will return to energy markets
- Days of abundant cheap capital for oil and gas likely over for the time being
  - Capital providers will adapt to the new environment
  - Alternative sources/types of capital e.g. 1st lien term loans, volumetric production payments, structured derivatives (e.g. prepaid swaps)
  - Cost of capital increases

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