Credit Ratings and Cash-Flow Analysis of Oil and Gas Companies: Competitive Disadvantage in Financing Costs for Smaller Companies in Tight Capital Markets

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Summary

This article concisely presents the results of a cash-flow analysis and the impact of recent capital-market dynamics on the relative competitive position of bigger [oil majors, public/private-partnership (PPP) oils, and independents] and smaller (unconventionals, small caps, and juniors) oil and gas companies. Upstream energy companies now compete not only for preferred access to the best new hydrocarbon resources but also for credit from capital markets. Although credit ratings of individual companies themselves have mostly remained unaffected by the Great Recession (in 2008–2009), the cost of credit and spread tied to the ratings has climbed steeply for most of them. The annual cash-flow statements of 24 representative companies were analyzed over a 5-year performance period (2004–2008). The companies involved come from all traditional peer groups: juniors (five), small caps (three), unconventionals (three), independents (three), PPP oils (four) and majors (six). Oil companies generate cash from the following two main sources of funds: (1) net cash generated from operations and (2) net cash raised from financing activities. In-depth analysis of the cash-flow metrics for each market capitalization category revealed that the operational income of smaller oil and gas companies commonly is insufficient to fund new capital-expenditure (CAPEX) projects. Such companies must resort to external financing resources (debt and equity financing), as follows from this study. The competition for financial resources has heightened since the onset of the recession, and companies need to be entrepreneurial in their search for capital. The pattern that emerged provides a crisp explanation on what drives asset swaps and acquisitions in times of tight capital. This analysis provides useful insight for oil executives as to the range of options and possible outcomes of finance strategies.

Introduction

Oil and gas companies develop competitive strategies to realize their visions and fulfill their missions. Past performance and future ambition are connected by a robust corporate strategy (Grant 2002), which allocates investment to the right project options at the right time to meet the strategic goals **(Fig. 1).** Individual companies engage in strategy planning that is based on economic analyses, peer-group benchmarks, internal audits, portfolio-management techniques, and a decision-making protocol for assessing corporate and project risks and opportunities (Willigers and Majou 2010). A survey of mission statements by stock-listed oil and gas companies reveals that such companies universally pursue the following three principal goals: (1) use wealth of resources and knowledge of employees, (2) create shareholder value by realizing profitable engagement, and (3) act responsibly and ethically in operations and communities. Mission statements commonly highlight what oil companies are currently doing, while their vision statements direct and visualize where they want to go and what they strive to become in the medium-term future. For example, most major oil companies formulate a vision in their company reports that expresses a wish to provide sustainable energy and to continually innovate while promoting energy efficiency and furthering digital technology. In short, the commonly stated mission of oil and gas companies (based upon the 24 companies reviewed here) is to use material and human resources to create profits and shareholder value in ethical harmony with communities; their vision is to do this in a sustainable fashion, using innovation, efficiency, and advancing digital technology.

Oil and gas companies must create shareholder value by efficient production of demand-driven fossil energy resources. Success is certainly not guaranteed for oil companies because of a real risk of operational setbacks (e.g., dry holes, unplanned production interruptions and declines caused by water breakthrough, reservoir damage, platform failures), which may adversely impact a company's return on investment (Maugeri 2007). Oil and gas companies must invest heavily in exploration to locate new reserves because current reserves deplete rapidly (Dahl 2004). The cost of developing new wells to produce from the newly discovered reserves continues to rise (Energy Information Administration 2010) because the remaining oil and gas fields are more complex to develop than earlier discoveries. Consequently, the oil and gas business is capital intensive, and companies must generate sufficient free cash flow from current income to fuel growth and prevent life-cycle decline of current assets (Hannesson 1998). This means that companies must make choices and continually budget for new CAPEX to explore for new fields, develop them, and build infrastructure to evacuate the hydrocarbons. **Fig. 2** shows the principal diagram for the cash flows related to CAPEX programs. When operations fall short to finance total assets year after year (Fig. 2), the cost of business assets must be paid for by new equity finance or new debt finance. External capital can be attracted by trading new shares for cash; alternatively, cash for growth may be raised by taking on long-term debt. If companies persistently fail to increase cash flow from their asset base, debt will grow and shares will be diluted. Ultimately, cash flow dries up and illiquidity may result in either insolvency or bail out by merging with or being acquired by a stronger partner.

The focus in this study is on the role of cash-flow strength and financing options in strategy planning of oil companies in tight capital markets. The corporate success and strategy planning critically depend on skillful attunement of operational capacity and concurrent financing needs (Livnat and Zarowin 1990; Dechow 1994). Credit ratings profoundly affect the structural gearing room for oil companies, but this fact has not been comprehensively documented for the sector in any previous systematic study. A systematic inventory of the credit status and hierarchy of oil and gas companies is provided here. The financing options available to the various types of oil companies are inventoried, followed by a cash-flow analysis of 24 representative companies. The results of the analysis reported here are original and developed by the author using credit-rating data from client reports of credit-rating

Original SPE manuscript received for review 29 March 2010. Revised manuscript received for review 15 November 2010. Paper (SPE 144489) peer approved 22 November 2010.

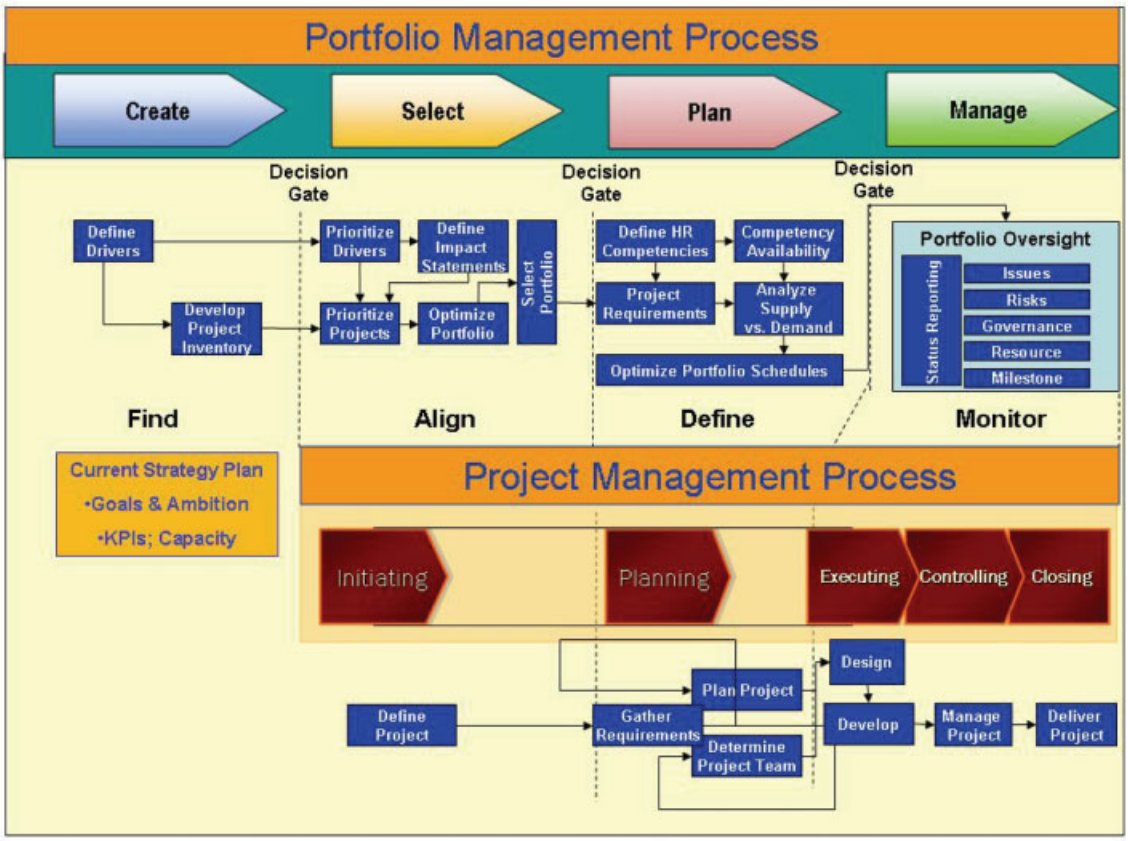


Fig. 1—Oil companies must continually make investment decisions about and allocate CAPEX to new projects that fit the portfolio. These new CAPEX projects must replace projects that are at the end of their field life and help to generate new cash to sustain the company's future cash flow. The generic workflow schedule shown must be underpinned by sound cash-flow analysis. The strategy for growth must also balance short-term shareholder returns and project investment opportunities for long-term corporate growth. This requires not only a sound strategy but also effective direction setting to implement the strategy to achieve the planned objectives.

agencies, press reports by Reuters, quarterly and annual US Securities and Exchange Commission (SEC) filings by companies, and publicly available white papers by major energy consultancies.

The message and findings of this research are not only relevant for smaller companies. As oil majors themselves struggle to maintain their superb operational performance [return on capital employed (ROCE); reserves replacement ratio (RRR); reserves production ratio (R/P); finding, development, and acquisition (FDA)/BOE; and recovery factor], they must in a timely way rejuvenate their portfolios and expertise to continue meeting the expectations of their shareholders. Several smaller companies that excel at biofuels, unconventional gas plays, and/or oil sands, and commonly with poor cash flow but attractive technology and expertise (and some assets), have recently been seized by oil majors. The cash-flow analysis of all players in this study explains why some gain and others fail. Inevitably, oil majors that struggle for too long with liquidity problems are prone to become mergers-and-acquisitions (M&A) targets themselves. Although the recessional recovery is now firmly under way (Weijermars 2010), the strategic effects of capital markets provide lasting lessons for oil company longevity as most oil and gas companies still continue their struggle to restore corporate earnings and profitability.

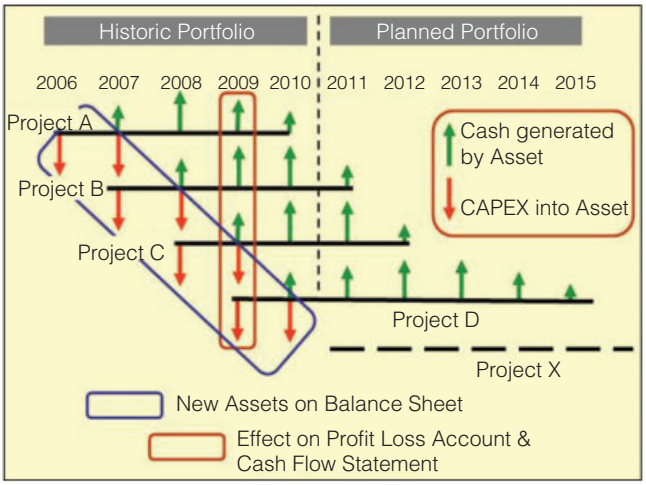


Fig. 2—Prudent financial management is of paramount importance for corporate success. For example, if tight funding for field-development projects prevents balanced project phasing in the corporate portfolio, operational cash flow from the new assets may kick in too slowly or with interruptions. Cash-flow shortfalls may lead to illiquidity, and further decline could herald insolvency.

This study proceeds as follows: The next three sections provide an industry wide credit review. The Cash-Flow Analysis Summary and Cash-Flow Analysis Details and Discussion sections summarize a detailed cash-flow analysis based on the annual cash-flow statements of 24 representative companies. The results reveal how the total assets of the various classes of oil companies are financed. A Conclusions and Recommendations section ends the paper.

Disclaimer. This study analyzes company performance on the basis of data abstracted from company reports. The analysis of these empirical data inevitably involves a degree of interpretation and uncertainty connected to the assumptions made. Although the results derived here are reproducible using the outlined research methods, the authors, Alboran Energy Strategy Consultants, and the publisher take no responsibility for any liabilities claimed by companies included in this study. Readers, especially serious inves-

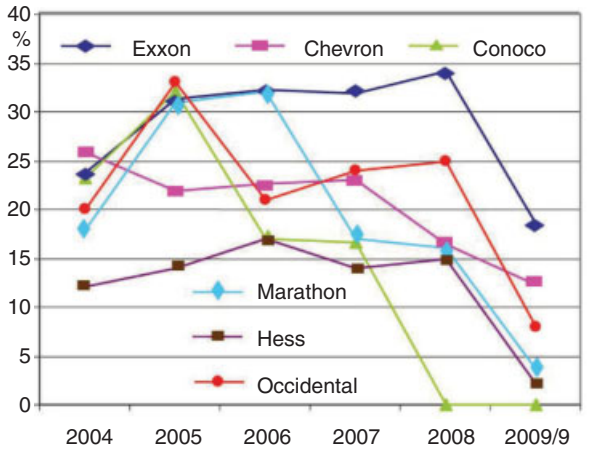


Fig. 3—Deceleration of ROCEs toward the 2008–2009 recession period. Conoco's negative ROCEs for 2007 and 2008 are truncated at the abscissa (Weijermars *In press*).

tors, should perform their own due diligence analysis regarding internal corporate technical risk management, considering the wisdom of some risk premium for companies having primary assets in newly evolving plays and potentially unstable business models. Additional risk may arise from safety issues and fines or penalties paid by companies under review. Investors must be cautious in trusting the conclusions of the established rating agencies and energy-business analyst agencies without in-depth consultation and inquiries on the agencies' relationship with the targeted companies. The 2004 Shell reserves problem should not be simply glossed over as a unique, one-of-a-kind event because internal corporate (and perhaps national) pressures remain high for all stock-listed exploration and production (E&P) companies (particularly unconventional players) to report excellent (and impressive) results from investment funds spent.

Effect of the Great Recession

The outcome of a successful corporate strategy should produce operational results that boost the financial performance because only then will investors be satisfied (Grant 2002). At any one time, there must be a balance between the strategy ambition and the company's ability to deliver the stated objectives. This requires (1) a flexible balance sheet that provides gearing room for raising more external capital if needed, (2) good credit rating that allows loans at affordable interest rates, and (3) a balanced and risked portfolio that is resistant to changes in the business climate.

These boundary conditions commonly apply positively to the major oil companies, but often not to the midcap and small-cap companies. When oil prices rose faster than production costs in the first half of the past decennium, a surplus above investment and dividend requirements was built up by most oil majors. Operational profits of oil companies outperformed the market [and even pharmaceuticals; see Andersson et al. (2006)] until the recession emerged and profits declined **(Fig. 3).** Nonetheless, the operational profits gave oil majors space for share buybacks with cash that could not be used in capital growth projects. When oil and gas prices fell at the onset of the financial crisis, balance sheets and debt gearing of oil majors provided sufficient flexibility to maintain both capital investment and dividends or share buybacks (see later in this paper). In contrast, the strategy options for smaller companies rapidly diminished when cash flow evaporated because of the global recession. Troubled companies may still survive in the long term either by merging with—or selling to—a stronger partner, or when an economic upturn occurs fast enough to bring them back to positive cash flows.

To fund new field-development projects and acquisitions, credit track records have become increasingly important to support companies in their growth ambitions. A corporate strategy commonly includes assumptions about the preferred growth rate and associated financial risk policies. Oil companies have experienced severe, additional pressures and risks from the financial value chain as an effect of the Great Recession (in 2008–2009), as follows:

- Decline in the world economy depressed oil and gas prices.
- Profitability decreased as operational margins and volumes declined.
- Equity financing had already become more difficult before the recession.
- Equity financing is no viable option when cash flow from operations is dismal.
- Credit financing has become scarcer and more difficult to obtain for most companies (except for the oil majors).
- Cost of debt financing for smaller companies has climbed steeply.

The credit ratings of the oil majors ensured them with investment-grade interest rates, which rose over the Great Recession, but not nearly as steeply as for noninvestment-grade midcap and small-cap oil companies. The cost of capital for AA-rated oil companies (Chevron, Shell, BP, Total) rose significantly in 2008 when interest rates charged spreads with a 2% premium above Treasury bill (T-bill) rates. The AA-spreads (interest rates above T-bills) charged to major oil companies came down again in the second half of 2009 with interest rates at T+ 0.8%, and more than USD 10 billion debt capital was raised by means of placement of AA-bonds by these companies in the course of 2009.

Many smaller oil companies (juniors, small caps, and some midcaps) also performed well during the past decennium, but they have less-flexible balance sheets. One principal reason is that they are commonly rated as noninvestment-grade companies, and for such debtors, interest rates—traditionally already high—tripled in December 2008. **Fig. 4** plots the increase of the yield spread for energy bonds over the Great Recession. Generally, lagging cash flow is a given for smaller oil companies. That is because the oil industry is mature and rarely provides opportunities for "easy money" in terms of excess cash flow from operations. This study shows that small oil companies can still succeed in their growth ambitions, but only if they harness competitive technology, expertise, and assets attractive to investors or partners in spite of lagging cash flow. The technology and professional experience of such companies must be unique and must have led to some initial success in generating cash flow from their asset base over a number of years.

Tight credit markets mean that smaller companies—structurally in need of cash—became attractive takeover targets both for oil majors and for national oil companies that wished to acquire strategic access to novel technology as well as experienced professionals. The December 2009 acquisition of BBB-rated XTO

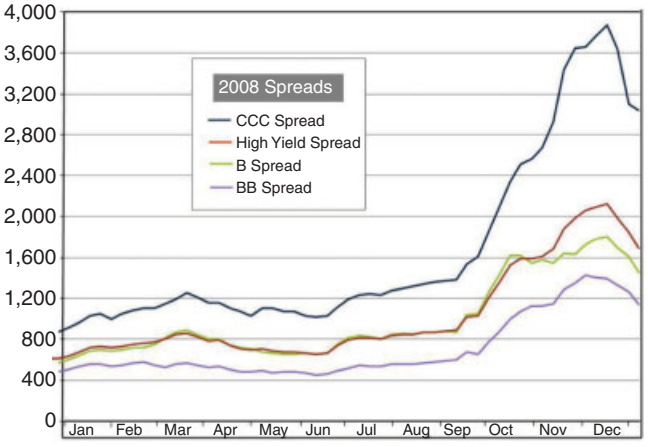


Fig. 4—Rise in bond spreads or interest charges above US T-bills in BPS (0.01%) as the Great Recession evolved. Spreads peaked in December 2008 when BB- grade bonds charged 12%, B-grade bonds 18%, CCC-grade bonds 38%, and high-yield bond rates averaged 23%.

TABLE 1—GENERIC SCHEDULE FOR CORPORATE GROWTH AND CREDIT-RATING GRADE*

Oil Company Capitalization Size	Capitalization Range	Corresponding Credit Rating Inventory
Large-cap	$50 billion to $500 billion	AAA, AA+, AA, AA–, BBB+
Mid-cap	$5 billion to $50 billion	AA–, BBB+, BBB, BBB–, BB
Small-cap	$500 million to $5 billion	BB–, B+, B, B–
Juniors (micro-cap and nano-cap)	under $500 million	Nonrated, B or lower

* There is no official definition of (nor general agreement about) the exact cut-offs of capitalization categories; these are here set in line with common market assumptions.

Energy by AAA-rated ExxonMobil is an example. AA-rated Total acquired a 25% stake in BB-rated Chesapeake's Barnett shale-gas field in a deal of January 2010 paying USD 800 million in cash and USD 1.45 billion to meet Chesapeake's operation expenditure (OPEX) for developing production expansion of the field over the next 2 years. Chesapeake swapped assets for up to 10.8 billion USD in three earlier deals in late 2008 and 2009 with BP, Statoil, and Plains E&P company. Likewise, A-rated Iberdrola has become a strategic partner of Petroceltic (nonrated, implicit junk-bond status) by acquiring in June 2008 a 22.4% equity stake in the company to diversify from its wind-energy assets and gain strategic access to upstream natural-gas assets and nonconventional-field-development technology and expertise. Petrochina's USD 1.8 billion acquisition of the Canadian Mackay River and Dover Oil sand projects held by Athabasca Oil Sands was also approved in December 2009. AA-rated Shell entered in a strategic asset swap with Hess in December 2009, lowering OPEX for both companies by consolidating portfolios (Gabon and Clair field to Shell; Norwegian-shelf assets Valhall and Hod to Hess).

Credit Ratings and Debt Financing

Credit-rating agencies (e.g., S&P, Moody's, Fitch, DBRS, RBC) give succinct and independent assessment of oil company performance and credit worthiness (Jewell and Livingston 1999; Kish et al. 1999). Credit ratings are used by investors as indicators of the likelihood of receiving the money owed to them in accordance with the terms on which they invested. Capital markets are not equally liquid for all companies. Access to unsecured debt (i.e., debt without equity stake in return for provision of cash) is cheaper for some than for others, and is based on their credit rating (Cantor and Packer 1995; Sylla 2002).

Market capitalization and credit ratings tend to correlate, as follows from the inventory summary of **Table 1.** The ascent of junior oil companies by small-cap to midcap size, and finally large-cap companies, is commonly supported by incremental improvements in their credit rating (Table 1).

Table 2 lists a new inventory of the 2009 credit ratings for selected US- and EU-based oil and gas companies in each of the major market capitalization categories distinguished here. Ironically, companies that need credit least are rated most creditworthy (hence Mark Twain's historic quote: "A banker is a fellow who lends you his umbrella when the sun is shining, but wants it back the minute it begins to rain."). ExxonMobil is the only oil company that still has a triple A rating (as of December 2009) and has had so uninterruptedly for 86 years. Shell lost its triple AAA-rating in 2004, after the company had to write off large parts of its proven reserves in the wake of the reserves scandal. Besides Exxon Mobil, only three other US companies have AAA ratings: Microsoft, Johnson & Johnson, and Automatic Data Processing. Such companies are investment grade and can readily obtain long-term debt from the bank at interest rates only a fraction above the relatively risk-free rate interests charged for T-bills. BP saw its credit rating lowered in September 2008 from AA+ to AA, reflecting turbulence around its 50% stake in Russian venture TNK-BP (with a BB+ rating). However, TNK-BP was upgraded to BBB– from BB+ in December 2009 and BP itself was restored to AA+ rating in 2009. Shell was upgraded from AA to AA+ in 2008, but this rating hike was reversed in 2009 because of concerns over its pension-fund deficit. The recent impact of the Macondo well blowout on BP's cost of credit is separately highlighted in the Effect of Disaster on Company Rating subsection.

Over the Great Recession (2008–2009), so-called "outlooks" have been revised from positive, to stable, to negative, which is credit-rating agencies' first signal that a rating grade adjustment may be imminent. However, only few actual rating adjustments have been made. For example, Suncor was downgraded from A– to BBB+ by S&P in January 2009. The rating agency added that without any key cash-flow protection measures in the near term, a further downgrade to BBB might occur in the next 12 to 18 months. Before that could happen, Suncor announced a merger with Petro-Canada in April 2009. Following the merger, Moody's downgraded Suncor to Baa2 (outlook stable), corresponding to BBB– of S&P. The lower credit rating reflects the company's higher full-cycle cost structure, which has resulted in weak netbacks as well as a detoriating balance sheet over 2008. On the short term, Suncor's capital spending will exceed cash flow from operations, leading to an increased debt. Suncor's oil-sand assets can still support an increased level of debt. A further downgrade of its credit rating beyond investment grade would create serious financial pressure for the company.

The credit rating of several major wholly state-owned oil companies remained robust over the recession period 2008–2009. For example, Saudi Aramco continues to enjoy A1 (positive outlook, Moody's) and A+ (S&P) ratings. Petronas' debt-financing, comprised of sukuk and bonds in 2009 is rated A1 by Moody's (and A– by S&P), several notches up from its BBB-rating of 2002. Pertamina, which offered a first international USD 700 million bond issue in 2009, at 330 to 350 basis points (BPS), may get a first official credit rating in 2010. On the other hand, PDVSA has been downgraded from BB– to B+ in June 2009, because of the resident country's rating decline. Pemex remains at BBB+ (outlook negative), Petrobras is at BBB–, and Gazprom stays at BB+ junk-bond status as of December 2009.

As a result of the banking crisis, underwriters of unsecured loans had become fewer and interest rates (spreads) tripled in December 2008 (Fig. 4). Typically, junk bonds are high-yield bonds because bonds issued to noninvestment-grade companies are attractive to the prudent investor only if premium returns compensate for the higher risk. The reference is provided by T-bills and the so-called spread, which states the premium over the T-bill rates. **Table 3** provides examples of return rates on noninvestment-grade high-yield bonds for a range of oil deals in 2008. The exceptionally high interest rates paid by El Paso Energy Corporation on its bond issue of December 2008 are because of concurrent market conditions and lagging cash-flow performance in combination with its BB– credit rating.

The credit ratings provide boundary conditions to oil companies for raising capital for their corporate growth. Smaller companies start out with a strategic disadvantage in financing options. When still in their junior and small-cap state of growth, such companies commonly cannot raise unsecured debt directly from the bank because banks are firmly unwilling to take on exploration risks and instead look for collateral in the form of producing assets or proven reserves. Smaller oil and gas companies are generally

TABLE 2—LONG TERM CREDIT RATING OF SELECTE D NORTH AMERICAN AND EUROPEAN OIL COMPANIES*

North American Oil Companies**	European Oil Companies**	Capitalization Category	S&P/Fitch Credit Rating	Moody's Credit Rating Eq.	Status Reflects Default Rate Perception	Historic Default Rates Credit Grade
			Investment-Grade Status			
Exxon (326)	–	Large-cap	AAA	Aaa	Prime quality investment-grade borrowers	Less than 0.5%
Chevron (155)	BP (182)	Large-cap	AA+	Aa1	Quality borrowers, investment-grade	0.5–1.5%
	Shell (180)	Large-cap	AA			
	Total (144)	Large-cap	AA			
	Eni (92)	Large-cap	AA–	Aa2		
	Statoil (80)	Large-cap	AA–	Aa2		
ConocoPhillips (76)	Iberdrola† (51)	Large-cap	A	A2	Investment-grade, medium class borrowers	1–3%
Occidental (67)		Large-cap	A			
	OMV (n/a)		A–	A3		
Suncor (55)		Large-cap	BBB+	Baa1	Save investment with investment-grade, unless economic situation deteriorates	5–10%
XTO Energy (27)	Repsol (33)	Mid-cap	BBB+			
Marathon (22)		Mid-cap	BBB+			
Hess Energy (20)		Mid-cap	BBB	Baa2		
			Noninvestment Grade Junk Bond Status			
Chesapeake (18)		Mid-cap	BB	Ba3	Speculative investment, prone to changes in economy	20–30%
Continental Res. (8)		Mid-cap	BB			
Whiting Petroleum (4)		Small-cap	BB			
	Aurelian (0.1)	Junior	BB–			
	Petroceltic (0.3)	Junior	(?)			
	PDVSA (n/a)		B+	B1	Highly speculative investment, further deterioration possible	50–55%
Oilexco North Sea (1.4)		Junior	CCC and less	Caa	Extremely speculative and highly vulnerable, under regulatory supervision or defaulted	70% and higher
Bow Valley Energy (0.5)		Junior	CCC and less	Caa		

* Ratings as of December 2009; Market capitalization in brackets USD billions

** Market cap, December 2009, Billion USD

† Iberdrola entered oil markets via its 2008 stake in Petroceltic

TABLE 3—EXAMPLES OF BOND OFFERINGS BY NONINVESTMENT-GRADE ENERGY COMPANIES*

Company	Rating S&P/Moody	Placement Sum (millions, USD)	Offer Price/Bond (USD)	Pricing Date	Maturity	Coupon (%)	Yield (%)	Spread (bps)
Southwestern Energy	BB+/Ba2	600	100,000	11 Jan 2008	1 Feb 2018	7.500	7.500	368
Chesapeake	BB/Ba3	800	100,000	20 May 2008	1 June 2018	7.250	7.250	345
Plains Exploration	BB/B1	400	100,000	20 May 2008	1 June 2018	7.625	7.625	384
El Paso Energy Corporation	BB–/Ba3	500	88.909	9 Dec 2008	12 Dec 2013	12.000	15.250	1362
Petrohawk	B/B3	500	100.000	9 May 2008	1 June 2015	7.875	7.875	455
Petrohawk	B/B3	300	98,750	16 June 2008	1 June 2015	7.875	8.110	455
Atlas Energy	B/B3	250	100,000	17 Jan 2008	1 Feb 2018	10.750	10.750	867
Petroleum Development	B–/B3	203	98,572	1 Feb 2008	15 Feb 2018	12.000	12.250	867

* RBC 2008

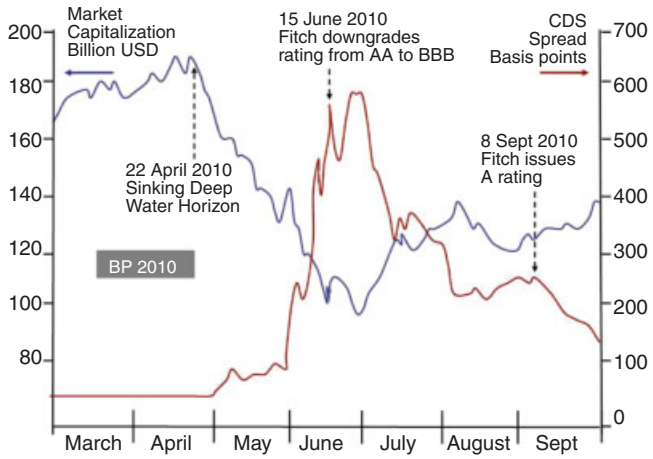


Fig. 5—Plotted is the rise in BP's 5 year forward default swap spread in basis points, which is the insurance premium paid for protection against default of BP debt paper. The CDS rate for BP spiked with 550 basis points (5.5%) over the regular rate for BP before the sinking of Deepwater Horizon.

rated as noninvestment grade (see Tables 1 and 2), and debt capital issued to them is classified as speculative investment or so-called junk bonds. For example, successful small-cap and lower-midcap oil companies such as Chesapeake Energy and Whiting Petroleum are both rated as BB (as of December 2009), which is noninvestment-grade or junk-bond status. Banks are not authorized to lend money directly to such BB-status companies, which therefore have to resort to junk-bond underwriters. Midcap oil companies such as Marathon Oil and Hess Energy have moved away from junk-bond status and up the credit-rating scale to BBB ratings, which is still near the bottom of the investment-grade credit-rating scale. This hard-earned investment-grade rating of BBB means that these midcap companies no longer need to pay the premium interest rates that junk bonds require.

In 2008, corporate bonds placed by oil and gas companies worldwide were valued at USD 76.4 billion (Dealogic database). The bond market recovered in 2009, with bond placements quadrupling to some USD 300 billion.

Effect of Disaster on Company Rating. A company crisis (rather than global economic crisis) also can send corporate interest rates up. BP saw a dramatic 2010 downgrade in its creditworthiness, as rating agencies responded to the Macondo well blowout of April 2010. First, BP's market capitalization declined from USD 185 billion in April to less than USD 100 million by the end of June. Rating agencies compounded BP's problems by downgrading its credit rating from AA+ to BBB–, only one step away from junk-bond status. By the end of June 2010, the cost of credit for BP rose to 600 basis points over T-bills, in step with its credit default swap (CDS) rates **(Fig. 5).** BP's share price started to recover when well coping progressed, which subsequently restored market capitalization of BP in the second half of 2010 (Fig. 5). An A credit rating was issued for BP by Fitch as of 8 September 2010, which lowered the company's cost of interest on debt capital.

Equity Financing

An alternative for oil companies in search for new capital is not borrowing money by placing bonds against interest payments but trading shares for capital. Smaller oil companies can still attract equity investors, but that requires growth stock potential and dividend payments and room to offer new shares (Bush and Johnston 1998). For some junior and small-cap companies, equity investors (which comonly comprise a syndicate of private, institutional, and/or strategic partners)—and not banks—are a good alternative source of capital. **Table 4** gives an overview of selected small-cap and midcap equity deals completed in 2008.

Raising equity capital has become more difficult for small-cap companies in the course of the past decennium. The reason is twofold: (1) capital gains of small-cap energy stocks have been disappointing compared to those of midcap and large-cap companies **(Fig. 6a),** and (2) volatility in the market over the Great Recession has made equity investors more cautious and reserved in providing capital to these small-cap (and junior) oil companies (Fig. 6b).

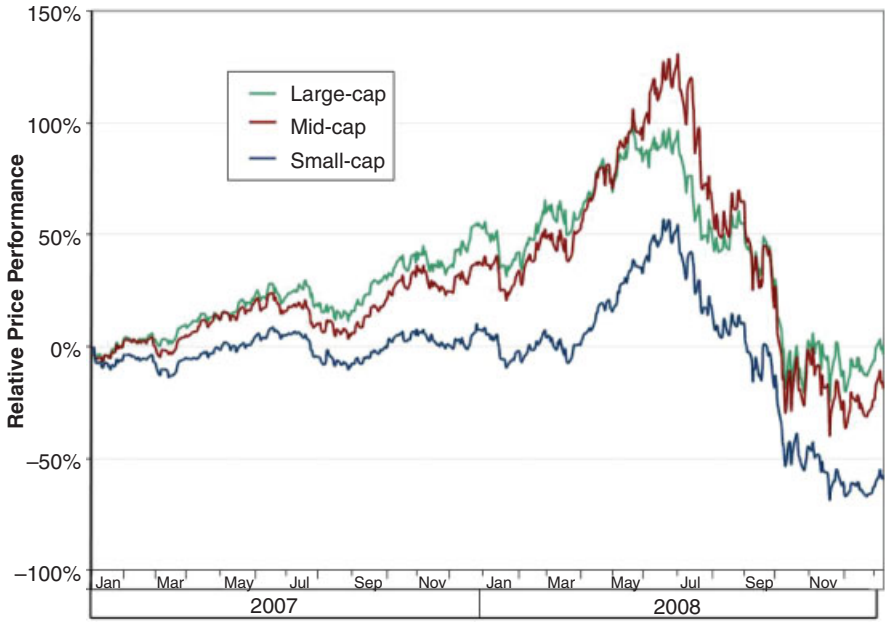
Although the raising of equity capital has become more difficult for noninvestment-grade companies over the past few years, E&P shares worldwide have shown a steep recovery in 2009. For example, UK E&P shares have outperformed the FTSE all-share index **(Fig. 7),** properly accounting for the concurrent climb in the oil price, and small-cap oil companies became interesting growth stocks. Some independents had clearly outperformed the oil majors in the period before the recession: Marathon, Hess, and Occidental Petroleum had all beaten the American Oil Index (Weijermars *In press*). This situation has been judged as an entry point for long-term commodity investments: Low commodity prices coincided with low valuations, which is an attractive value proposition to equity investors.

It is worth noting that some of the smaller players acquired other smaller players, financially disstressed by the 2008–2009 credit crisis, by primarily using equity financing to secure the deals. For example, Dana Oil of UK bought Bow Valley Energy for USD 177 million in 2009 and raised part of the cash by issuing equity. Likewise, Premier Oil acquired insolvent Oilexco North Sea for USD 505 million using credit facilities and USD 272 million by issuing new equity.

TABLE 4—EXAMPLES OF SHARE OFFERINGS BY NONINVESTMENT-GRADE AND INVESTMENT-GRADE ENERGY COMPANIES*

Company	Rating S&P/Moody	Placement Sum, Millions (USD)	Offer Price/Share (USD)	Pricing Date
REX	N/A	176.4	20.75	5 May 2008
Whiting	BB	233.6	20.00	24 July 2008
Petrohawk	B/B3	310.5	15.00	29 January 2008
Petrohawk	B/B3	758.7	26.39	8 May 2008
Petrohawk	B/B3	762.7	26.53	11 August 2008
Chesapeake	BB/Ba3	1,052.3	45.75	27 March 2008
Chesapeake	BB/Ba3	1,380.0	N/A	20 May 2008
Chesapeake	BB/Ba3	1,645.9	57.25	9 July 2008
XTO	BBB+	1,265.0	55.00	14 February 2008
XTO	BBB+	1.435.2	48.00	23 July 2008

* RBC 2008



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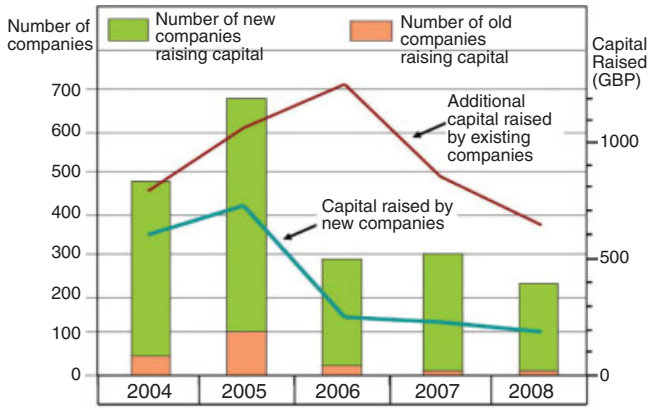

(b)

Fig. 6—(a) Capital gains of small-cap energy stocks lagged compared to those of midcap and large-cap companies, before the Great Recession. Small-cap energy stocks have also eroded faster and more than those of midcap and large-cap companies, during the Great Recession; (b) equity capital financing has declined during the second half of the past decennium, both in number of companies that issued shares and in total capital raised.

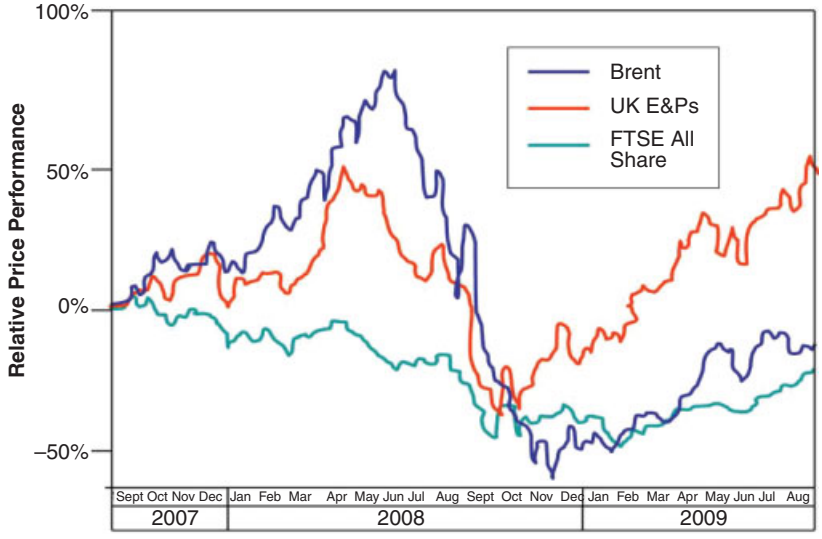

Fig. 7—UK E&P shares have outperformed the FTSE all-share index during recovery from the Great Recession, mostly supported by the rising oil price.

TABLE 5—CAPITALIZATION CATEGORIES AND PANEL OF PEER GROUPS STUDIED

	Capitalization (billions, USD)					
	0.5 <	0.5–5	5–50		> 50	
Category			Mid caps		Large Cap	
	Juniors	Small caps	Unconventionals	Independents	PPP oils	Majors
Name	Oilexco Aurelian Petroceltic Rex Quest	Whiting Premier Dana	XTO Suncor Chesapeake	Occidental Marathon Hess	Eni Statoil Petrobras Repsol	Exxon Chevron Conoco Shell BP Total
Ref in this study	Smaller companies			Bigger companies		

Cash-Flow-Analysis Summary

The cash-flow analysis performed here over a 5-year performance period (2004–2008) focused on 24 oil and gas companies' capacity to generate CAPEX from operational income. The two main sources of funds for any company are (1) net cash from operations and (2) net cash from financing activities. If the operational income is insufficient to fund all CAPEX, additional funds need to be raised from financing activities.

The annual reports served as primary data sources, using the consolidated income statement, balance sheet, and cash-flow statement statements as reported in form 10-K SEC filings. The 24 companies studied were selected from several traditional peer groups: juniors, small caps, unconventionals, independents, PPP oils, and the oil majors [for a discussion of PPP oils, see Weijermars (2009a, 2009b)]. Their market capitalization categories are classified in **Table 5.**

To compare all cash-flow statements irrespective of the absolute amounts involved, accounts were normalized as outlined in **Table 6.** The numbers used in Table 6 and **Figs. 8 and 9** are the real averages from the peer groups over the 5-year period studied (2004–2008). Fig. 8 explains the flow of normalized net cash from source to sink. This cash-flow study revealed that bigger oil companies (independents, PPP oils, and oil majors; Fig. 8) can fully fund CAPEX of new projects from operational cash flow and can amply spend their excess earnings on financing activities (retiring or refinancing debt, paying dividends, and buying back common shares). In contrast, CAPEX of new projects by smaller oils (junior, small caps, and unconventional oil and gas companies; Fig. 8) can be covered only by supplementing net cash generated from operations with cash raised from financing activities (debt and equity issues; some cash surplus may occur).

Further analysis of the data showed that the dependence on external financing is greatest for juniors and least for the oil majors (Fig. 9). In fact, the normalized cash-flow data show how the global oil industry provides a complete example of how juniors, small-cap, and innovating companies (unconventional oil and gas players) emerge and struggle for cash to fund growth. Juniors need to jump-start new projects to start generating positive net income from operations. As such smaller companies succeed to increase both market capitalization and cash flow to mirror the performance of the bigger conventional oil companies, their need for cash supplements from financing activities decreases. In fact, midcap-sized (independents) oil companies are already able to fund financing activities using 16% from operationally earned excess net cash, of which the other 84% suffices to cover all CAPEX needs (Fig. 9).

The large net earnings realized by the oil majors allow them to use only half of the cash generated from operations for new CAPEX projects, the other half is used to fully fund all financing activities (debt retirement, refinancing, dividend payments, and share buybacks), and some cash surplus for the yearly end result (Fig. 9, first data column).

TABLE 6—PRINCIPAL ALGORITHMS USED TO NORMALIZE CASH-FLOW STATEMENTS

	Bigger Oils (Majors, PPP Oils, and Independents)		Smaller Oils (Juniors, Small Caps, and Unconventionals)	
Cash sources and sinks	CAPEX can be fully funded by cash from operations; excess cash is sunk into financing activities*		CAPEX funding needs cash raised from financing activities to supplement cash from operations*	
	Algorithm	Typical Result	Algorithm	Typical Result
Capital expenditure (CAPEX)	CAPEX/(OPS+EX–SURPLUS)	–69	CAPEX/(OPS+FINAN +EX–SURPLUS)	–100
Net income from operations (OPS)	CAPEX/(OPS+EX–SURPLUS)	+105	CAPEX/(OPS+FINAN +EX–SURPLUS)	+50
Net income from financing activities (FINAN)	FINAN/(OPS+EX–SURPLUS)	–31	FINAN/(OPS+FINAN +EX–SURPLUS)	+57
Currency exchange rate correction (EX)	EX/(OPS+EX–SURPLUS)	0	EX/(OPS+FINAN+EX–SURPLUS)	0
Cash surplus/deficit for the year (SURPLUS)	SURPLUS/(OPS+EX–SURPLUS)	+5	SURPLUS/(OPS+FINAN+EX–SURPLUS)	+7

* Columns for bigger and smaller oils are shown here strictly separate. In the analysis the algorithms (left or right columns) were determined by an "if" statement that checks whether OPS > |CAPEX|.

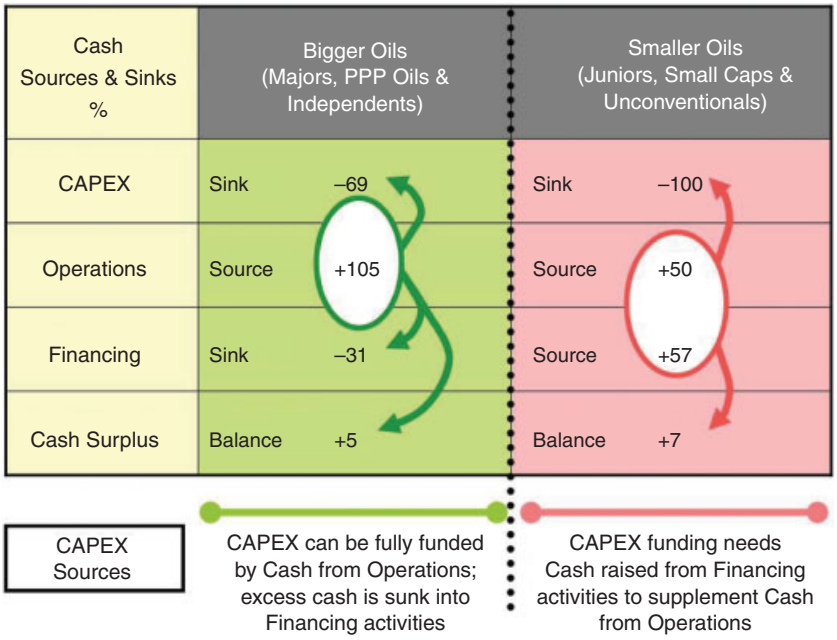

Fig. 8—Cash-flow numbers show percentage of annualized cash-flow sources (+) and sinks (–) on the basis of 5-year averages (2004–2008). A clear dichotomy exists between the cash sources of smaller companies and those of bigger companies. Because of their reliance and dependence on external financing, smaller companies have been hit hard by the recession.

Cash-Flow-Analysis Details and Discussion

The concise results per peer group summarized in the preceding section are based on the panel of oil and gas companies given in Table 5. Details and major trends for each peer group are outlined in the following, including major strategy choices in financial management.

Oil Majors, Large-Cap Oils. The six oil majors, three American companies (ExxonMobil, Chevron, and ConocoPhillips) and three European companies (Shell, BP, and Total), all have a marked strategic advantage from their strong operational net cash flow**.** Exxon is at the most extreme end of peer group outperformance **(Table 7),** with margins and turnover from operations providing

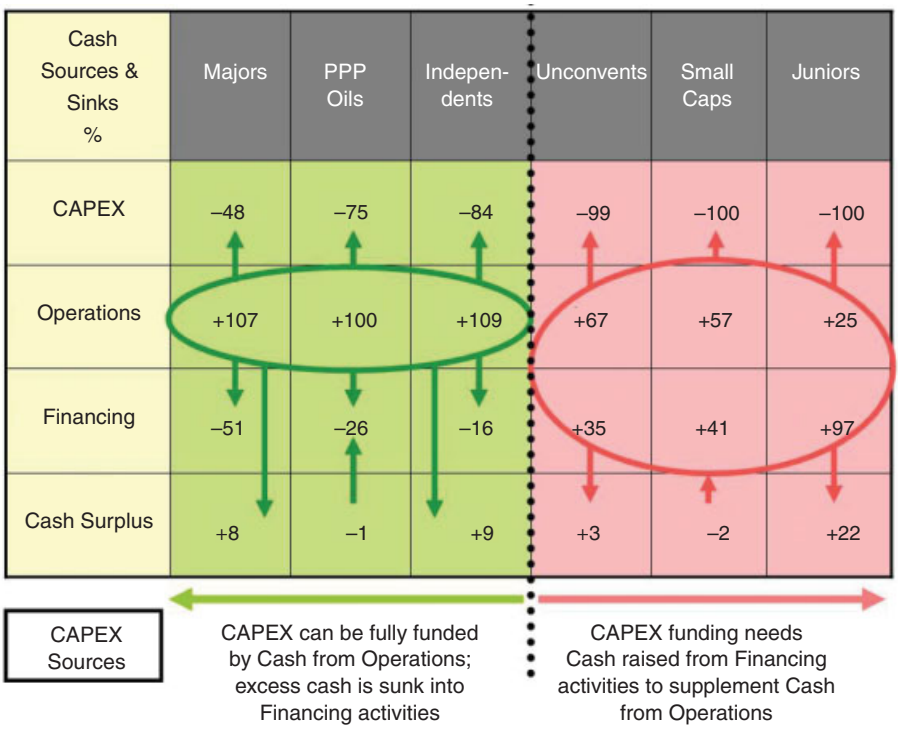

Fig. 9—Oil majors can fully fund CAPEX of new projects from operational cash flow and spend excess earnings on financing activities (retiring or refinancing debt, paying dividends, and buying back common shares). In principle, PPP oils and independents can also fund CAPEX projects without external financing. However, juniors fund 75% of their CAPEX for projects from external financing. For small-cap companies, 43% comes from external financing, and 32% external financing is needed for CAPEX programs in unconventional oil and gas companies. The dependence on external financing sources decreases as companies grow bigger. Numbers show percentage of annualized cash-flow sources (+) and sinks (–) on the basis of 5-year averages (2004–2008). The individual-company data on which the averages for each of the peer groups are based are shown in detail in Tables 7 through 11.

TABLE 7—CASH-FLOW SOURCES (+) AND SINKS (–) FOR OIL MAJORS (5-YEAR AVERAGES, 2004–2008)

Percentage	Exxon	Chevron	Conoco	Shell	BP	Total	Mean*
CAPEX	–29	–52	–69	–48	–44	–69	–48
Operations	+112	+111	+97	+111	+104	+118	+107
Financing	–71	–48	–26	–52	–56	–32	–51
Cash surplus	+12	+11	+2	+11	+4	+16	+56

* Mean is used as input for Fig. 9.

TABLE 8—LIQUIDITY AND DEBT RATIOS (5-YEAR AVERAGES, 2004–2008)

	Majors	PPP Oils	Indep	Unconv	Small Caps	Juniors
Current ratio	1.20	1.17	1.14	0.92	0.88	N/A
Quick ratio	0.83	0.79	0.85	0.70	0.71	N/A
Financial leverage	2.24	2.74	2.26	2.34	2.10	2.26
Debt/equity	0.20	0.44	0.33	0.71	0.70	0.70

outstanding net cash flow of which only 29% is needed to cover all CAPEX projects and a hefty 71% is sunk into its financing activities (debt retirement, some refinancing, dividends, but foremost major share-buyback programs). The three American companies (Exxon, Chevron, and Conoco) and three European companies (Shell, BP, and Total) have different strategies to stash away excess cash earned after tax (Table 7). After CAPEX for new projects is paid, half or more of the remaining cash from operations is primarily used on share-buyback programs by American majors (Exxon and Chevron), whereas European majors (Shell and BP) spent the remaining cash primarily on dividends. ConocoPhillips and Total are still conservative with use of excess earnings and sink approximately 30% of operational net earnings into the funding of financing activities and 69% into new CAPEX projects to unlock future cash flows.

The reason that American and European companies have different dividend policies is connected to a marked difference in shareholder expectations that divides American and European oil majors. For example, even in 2009, US oil dividend payments remained conservative. US 2009 T-bills at 2.326% return rates apparently made Exxon's 2009 dividend of 2.3% acceptable to its shareholders. Whereas American companies maintained 2009 dividend payments at low levels (i.e., Exxon at 2.3%, Chevron at 3.5%, Conoco at 3.8%), European oil majors all tactically raised their 2009 dividends (i.e., BP at 5.9%, Shell at 6.1%, Total at 7.4%) to lure investors back to their stocks and restore stock multiples. The dividend yield stated here refers to what is paid out to shareholders for every US dollar invested in the company.

In 2009, all of the European oil majors have turned to the bond market to meet CAPEX and dividend outflows. Some of these companies reduced their exposure to volatile interest rates of revolving bank debt [floating debt rate subject to changes in bank base rate or London Interbank Offered Rate (LIBOR)] by retiring loan facilities. For example, Shell raised USD 5 billion in three 2009 AA-bond issues with maturities of 2 years, 6 years, and 10 years; Total raised USD 1 billion in September 2009 by selling 6-year AA bonds at 3.206%, only 88 basis points above T-bills; and BP issued USD 325 million plus GBP 500 million AA notes in June 2009 (Reuters 2009). The bond capital of USD 5 billion raised by Shell is the yearly maximum allowable corporate loan size under the new international bank covenants. In fact, AA-rated companies that can raise debt capital at 3.2% interest rates in plain-vanilla bonds have unlocked a cheap source of capital. A sustained recovery will enable all AA companies to meet capital needs from internally generated free cash flows in the course of 2010 and 2011.

Oil majors are doing so well in terms of cash flow (as compared to the smaller companies) because they have flexible balance sheets and gearing room for more debt. **Table 8** shows the typical liquidity ratios and debt ratios for the various types of oil companies. Oil majors have low historic debt ratios, favorable credit ratings, and room for equity financing, and their diversified operations make oil majors less vulnerable to market changes. While even oil majors embarked upon major operational and financial restructuring programs in 2009, juniors, small caps, and those companies engaged in unconventional plays (termed here unconventionals) had less-flexibility in their balance sheets to take on more debt. These smaller oil companies had little room for an increase of debt gearing (high historic debt ratios; Table 8). Unfavorable credit ratings, little room for equity financing in times of recession, and less-diversified portfolios make them vulnerable to segment underperformance. Small caps and unconventionals typically have current and quick ratios below unity, which means that every dollar of their current liabilities can only fractionally be covered from dollars in their current assets, if immediately called for redemption. For example, Suncor's quick ratio (an unconventional player) of 0.65 in 2008, indicates that for every dollar of liability only 65 cents of current assets would be immediately available if liquidation were needed. The gearing or debt ratio for juniors and unconventionals is also much higher as for mature bigger oils (majors, PPP oils, independents); see Table 8. This situation means that raising new cash from debt financing is very difficult for juniors, small caps, and unconventionals. Even when successful, new cash will be offered to those companies only at unattractive, expensive interest rates (see earlier discussion in the Credit Ratings and Debt Financing section).

Apart from the strategic advantages in capital financing in favor of oil majors, these also enjoy an operational efficiency resulting from their policy to focus principally on large assets (Osmundsen et al. 2006). **Table 9** lists the FDA costs for the US majors, which lie well below the industry average. In contrast, small-cap companies such as Whiting Petroleum Corporation do slightly better

TABLE 9—EXAMPLES OF FDA COSTS

FDA	Exxon	Chevron	Conoco	Whiting	Industry Average*
USD/Boe	10.89	13.92	11.92	21.25	23.84
	3-year averages, 2006–2008			2004–2008	2006–2008

* Global average for FRS companies, IEA number. Company data from company reports.

TABLE 10—CASH-FLOW SOURCES (+) AND SINKS (–) FOR PPP OILS (5-YEAR AVERAGES, 2004–2008)

Percentage	ENI	Statoil	Petrobras	Repsol	Mean*
CAPEX	–65	–79	–87	–68	–75
Operations	+99	+106	+100	+94	+100
Financing	–32	–25	–16	–32	–26
Cash surplus	+2	+2	+3	+6	+1

* Mean is used as input for Fig. 9.

than the industry average, but have an FDA cost per barrel oil that is still nearly double that of any of their US-major peers. For comparison, a European-based oil major such as Shell also has a 2006–2008 FDA at USD 12.00/BOE. Further, the 2008 E&P debt per barrel of proven reserves for Exxon was lowest of all peers at USD 0.53/BOE. For comparison, Chevron comes out second with a total E&P debt over proven reserves of USD 0.84/BOE for 2008 and ConocoPhillips stood at USD 2.05/BOE for 2008 (Fitch Ratings 2009). A break-even point of USD 60/BOE is required for new BP oil assets in 2009, according to a BP 2009 strategy briefing.

The cash-flow performance of the so-called PPP oils (large caps like the oil majors) is nearly as good as that of the oil majors. Their normalized cash flow data over the 5-year period (2004–2008) are summarized in **Table 10.** The mean of the cash-flow data for this peer group provided the numbers used in Fig. 9.

Midcap Oil Companies. ***Independents.*** Three successful midcap companies, so-called independents, studied here are Occidental, Marathon, and Hess Energy Corporation (see the panel overview of Table 5). Their normalized cash-flow data over the 5-year period (2004–2008) are summarized in **Table 11.** The mean of the cash-flow data for this peer group provided the numbers used in Fig. 9.

Occidental is an international oil and gas company whose upstream strategy is to focus on mature, low-geological-risk properties and raise production through various enhanced-oil-recovery techniques, including steamflood, carbon flood, and waterflood. Their 2008 FDA stands at USD 23.84/BOE. The cash-flow performance of Occidental is very robust (Table 11) and comparable to those of majors such as Conoco and Total (Table 7). The cash-flow performance of Marathon and Hess means nearly all operational net income flows into new capital projects (Table 11) and little remains for shareholder dividends. However, both companies have been market leaders as growth stocks over the performance period studied.

Marathon's operational income has been depressed because of downsizing in refining output over the recession. Exceptionally low natural-gas prices in 2009 have begun to impact its portfolio of midstream natural-gas transportation and storage assets. The company is also laden with USD 8.6 billion of long-term debt. Marathon has a relatively large downstream presence for an integrated oil company, with a downstream/upstream output ratio of 2.85. For comparison, Exxon's ratio is 1.51, Chevron's is 0.81, Conoco's is 1.45, and Shell's is 1.21. In 2008, the global average refinery indicator margin fell to USD 6.50/BOE, down from almost USD 10/BOE in 2007, and it dropped further in 2009 to a mere USD 5/BOE (BP data). Marathon's negative cash flow in 2009 will need a turnaround. Selective asset sales have begun (e.g., CNOOC bought Marathon's 20% stake in Block 32, Angola, for USD 1.3 billion). Marathon considered in a 2008 announcement a split up of the company into two publicly traded entities (upstream and downstream), but these plans were shelved when the Great Recession emerged.

Hess Corporation (BBB) holds a 50% stake in Hovensa (also rated BBB), one of the world's largest refineries (0.5 million B/D) located in the US Virgin Islands; the other 50% is owned by PDVSA (rated BB-). Hess is considering raising new equity finance to meet CAPEX demand allocated to growth opportunities if internal cash flows fall short.

Unconventionals. The peer group in the midcap market capitalization category comprised three unconventional energy players: XTO, Suncor, and Chesapeake. Their normalized cash-flow data over the 5-year period (2004–2008) are summarized in **Table 12.**

What emerged is that these companies need to continually raise cash supplements from equity and debt financing to fund CAPEX projects. However, with lower credit ratings, tighter capital markets, and reluctant equity investors, unconventional oil and gas companies became willing takeover candidates in the aftermath of the financial crisis. Among the US majors, Exxon has taken advantage of the market opportunity presented by falling natural-gas prices and acquired the natural-gas assets of cash-strapped XTO Energy in a USD 41 billion acquisition announced in December 2009. Total acquired a 25% stake in Chesapeake's Barnett shale gas field in a deal of January 2010, paying Chesapeake USD 800 million in cash and USD 1.45 billion to meet its OPEX for developing production expansion of the field over the next 2 years. Chesapeake also swapped assets for up to USD 10.8 billion in three earlier deals in late 2008 and 2009 with BP, Statoil, and Plains E&P company. Suncor announced a merger with PetroCanada in April 2009. Suncor's capital spending will still exceed cash flow from operations, leading to an increased debt. Suncor's oil-sand assets can still support an increased level of debt, but a further downgrade of its credit rating beyond investment grade would create serious financial pressure for the company. Petrochina's USD 1.8 billion acquisition of Mackay River and Dover oil-sand projects held by Athabasca Oil Sands was also approved in December 2009.

In spite of its poor cash flow, the North American industry for unconventional gas is well placed for expansion; because of its strategic importance, past tax breaks provided an important incentive. The anticipated switch toward power generation using cleaner natural gas over the next 2 decades implies that further growth in the US domestic production of natural gas is required

TABLE 11—CASH-FLOW SOURCES (+) AND SINKS (–) FOR INDEPENDENTS (5-YEAR AVERAGES, 2004–2008)

Percentage	OXY	MRO	HESS	Mean*
CAPEX	–69	–85	–99	–84
Operations	+108	+116	+104	+109
Financing	–31	–15	–2	–16
Cash surplus	+8	+16	+3	+9

* Mean is used as input for Fig. 9.

TABLE 12—CASH-FLOW SOURCES (+) AND SINKS (–) FOR UNCONVENTIONAL OIL AND GAS PLAYERS (5-YEAR AVERAGES, 2004–2008)

Percentage	XTO	Suncor	Chesa	Mean*
CAPEX	–100	–97	–100	–99
Operations	+61	+91	+50	+67
Financing	+39	+12	+54	+35
Cash surplus	0	+6	+4	+3

* Mean is used as input for Fig. 9.

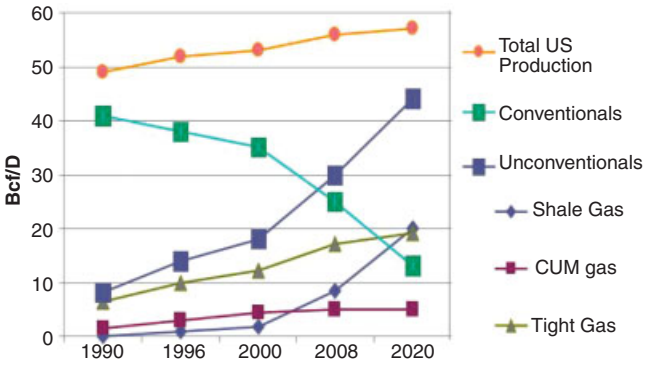

Fig. 10—Production from unconventional resources (shale gas, CBM, and tight sands) accounts for more than half of US natural-gas production. Conventionals are in decline and are barely balanced by production increases from unconventionals [data from Energy Information Administration (2010)].

by some 18 Bcf/D as compared to 2009. Such a growth does not immediately follow from the current modest growth path for US natural-gas production. That is because production of unconventionals increased by 12 Bcf/D from 2000 through 2008, but conventionals already declined by 10 Bcf/D over the same period, allowing for a net increase of only 2 Bcf/D. The US natural-gas production from conventionals will decline further and drop to 13 Bcf/D by 2020 **(Fig. 10).** Recent estimates indicate that shale gas output is expected to more than double to 20 Bcf/D by 2020. But that is only just enough to maintain US production at its current level. Production of coal bed methane (CBM) has remained flat since the early 2000s when interest shifted to shale gas; production from tight sands is also leveling off, according to EIA projections. If domestic production cannot grow in step with the anticipated rise in demand for natural gas, imports from Canada and LNG from overseas must fill the gap.

Small-Cap and Junior Oil Companies. The cash-flow summary for small-cap and junior companies is given in **Table 13.** Additional cash must be raised by them to fund new CAPEX projects. The evolutionary paths of juniors and small caps (such as unconventionals) are fueled by earning potential and growth of market capitalization, which is a steep challenge because their operations traditionally cannot yet generate enough cash for capital growth projects. Additional cash must be raised by such companies from financing activities (Table 13). In contrast, the more-mature oil and gas operators (majors, PPP oils, independents) sink a substantial proportion of operationally earned cash into financing activities—no new net cash was raised by them over the study period (Tables 7, 10, and 11).

The Whiting Petroleum (BB) asset base comprises mature fields, which generally results in higher lifting costs. When lifting costs are higher, the cost of FDA if modest, could compensate for the higher lifting cost. However, FDA is rapidly climbing, and the 5-year average (2004 to 2008) now stands at USD 21.25/BOE, which is relatively high as compared to the oil majors (Table 9). It is obvious that the internal rate of returns (IRRs) from quality assets of the oil majors generate more free cash flow than for the midcap companies. This effect is somewhat balanced by the larger CAPEX demands met by oil majors when new fields need to be developed. In the period studied here, small-cap companies typically were willing to leverage themselves to capitalize on new opportunities. Between 2004 and 2008, Whiting's focus was on the acquisition of producing properties. From 2006 onward, drilling and production from those assets lead to organic growth, as the success rate of drilling reached 92%. Whiting has made prudent use of funding from various sources, and disciplined management of free cash flow has given investors generous near term gains.

As outlined earlier, the source of loans and interest rates crucially depends upon a company's credit rating. Smaller oil companies can raise new capital from either bond underwriters or equity investors, both of which expect premium returns on investments. This puts smaller companies at a double strategic disadvantage as compared to the larger companies. Junk-bond-rated oil companies are commonly struggling to complement their internal cash flow with additional cash from either equity issues or debt bonds (or both) because internal margins cannot provide enough capital for operational and rapid-growth expenditures. Junior and small-cap oil companies, noninvestment-grade companies (BB and lower), can resort to high-yield bonds to raise debt capital, but interest rates are commonly steep (Table 2 and Fig. 4).

TABLE 13—CASH-FLOW SOURCES (+) AND SINKS (–) FOR SMALL CAPS AND JUNIORS (5-YEAR AVERAGES, 2004–2008)

Percentage	Small Caps	Juniors
CAPEX	–100	–100
Operations	+57	+25
Financing	+41	+97
Cash surplus	–2	+22

Some smaller oil companies did not succeed in raising new cash during the credit crisis and went insolvent. For example, the 2008 bankruptcy of Oilexco North Sea was wholly because of the credit crunch, as can be inferred from its excellent increase in operational cash flow after restructuring in 2005 **(Table 14).** The company management tried to raise additional cash in October 2008 by a bond issue, but the rates for nonrated bonds (junk bonds) had then exploded and left an otherwise fine company stranded without access to cash. Bankruptcy followed insolvency in December 2008, after which Premier Oil moved in to take over Oilexco's prime assets. Premier Oil acquired the assets of Oilexco for USD 505 million using favorable credit facilities and raising USD 272 million by issuing new equity.

Conclusions and Recommendations

Conclusions. The access to cheap financing sources and superior gearing ratios and robust operational cash flows of oil majors and PPP oils (all with credit ratings of AAA, AA, or A) placed these companies in a much better position to weather the Great Recession. In contrast, midcaps, small caps, unconventionals, and junior oil companies (commonly with BBB and BB credit ratings, or nonrated) faced cost of credit, which rose to several percent above that for AAA, AA, and AA-rated companies (at the peak of the financial crisis in December 2008). Credit cost had also climbed for AA-rated companies (Chevron, Shell, BP, Total) during 2008 when interest rates (spreads) charged a 2% premium above T-bill rates. Meanwhile, the AA spreads (interest rates above T-bills) for major oil companies have come down again in the second half of 2009, with interest rates at an attractive 0.8% over T-bills. With such cheap credit lines, taking over unconventionals and other cash-strapped companies has become economically beneficial for oil majors. Credit-ratings agencies were quick to react and state that the AAA rating of Exxon would not be impacted by its December 2009 acquisition of BBB+ rated XTO Energy. In other words, the liquidity of XTO as Exxon's new subsidiary has been boosted by access to cheaper debt financing, allowing it to retire expensive BBB+ debt by replacing it with much cheaper AAA debt financing.

TABLE 14—CASH-FLOW SOURCES (+) AND SINKS (–) FOR OILEXCO, JUNIOR COMPANY

Percentage	2005	2006	2007	2008
CAPEX	–100	–100	–100	–100
Operations	–4	–3	+42	+65
Financing	+214	+90	+59	+26
Cash surplus	+110	–13	0	–9

Mature oil companies commonly are able to finance their operations and growth projects mostly from internally generated cash flows. Their portfolios comprise primarily large field projects, which keep their FDA and lifting costs per BOE relatively low (Table 9). In contrast, smaller oils with ambition for rapid growth have higher OPEX (Table 9) and are commonly unable to finance such expansion from operationally generated free cash. They must almost yearly resort to additional financing sources (i.e., debt, equity, asset sales) to finance growth projects as well as existing assets. However, the liquidity of smaller oils is much weaker than that of bigger oils (Figs. 8 and 9), their projects are commonly less profitable, and their portfolios are less diversified. Junior oils' heavy focus on a limited range of upstream and/or downstream activities make them also more vulnerable to conjectural declines as well as to regular operational risks.

Recommendations. This study used a novel method of cash-flow normalization to compare the cash-flow sources and sinks for 24 representative oil and gas companies. Individual companies reinvest their free cash flow based on strategic considerations. The motivation to allocate net cash generated from operations and the raising of additional cash from financing activities are driven by competition for new acreage and a range of strategic issues. Some patterns in strategy choices are formulated in the following under an umbrella of generic recommendations for each category of market capitalization. Specific premium suggestions on market opportunities are included as an illustration of future strategy options from a practitioners' point of view.

Question 1. What can be recommended to the strategy managers of oil majors, independents, and PPP oils? First, do not limit your tactical response to the global recession to cost cutting and restructuring of internal programs, but consider external growth opportunities. For example, inventory which companies could provide the most attractive assets and synergy with your existing portfolio. Second, make sure you benefit from superior credit rating by leveraging up credit over equity and acquire financially distressed companies that can rapidly turn into strong cash-flow mechanisms once refinanced under better terms. Third, make sure that new acquisitions really improve your financial performance; otherwise, consider selective divestments or selective purchases of the target-company assets.

For oil majors (and the comparable PPP oils), strategy choices are facilitated by

- Flexible balance sheets
- Gearing room for more debt
- Favorable credit ratings
- Equity financing room
- Diversified operations
- Economy of scale in operations

Strategy actions commonly taken by oil majors include

- Raise cheap bond capital and retire (expensive) long-term bank loans.
- Increase gearing ratio if needed for dividends and growth acquisitions.
- Maintain dividends to keep investors interested (European majors) or continue share buybacks to support share price (US majors: Exxon and Chevron).
- Select equity transactions for opportunistic acquisitions or salvation.

Significant assets are available for liquid buyers as a result of downward borrowing base adjustments. Takeover of distressed companies provides growth synergy and complementary activities (2009 examples):

- o Exxon balances gas/oil ratio by acquiring XTO Energy and boosts reserves.
- o Total buys into Chesapeake assets.
- o Petrochina buys into Canadian oil sands.
- o Iberdrola (midcap company) diversifies from wind energy into hydrocarbons (Petroceltic acquisition).

A premium strategy to PPP oils is

- Statoil and Hydro made a timely merger in 2008. Eni and Repsol may also be natural partners for a new European merger to achieve nonorganic growth and synergy capital gains rather than banking on organic growth only.

Question 2. What can be recommended to the strategy managers of midcap companies? Freeze all CAPEX programs instantly if the required investment cannot be covered from operational net cash flow because relying on access to capital markets for additional financing can be risky. Second, be prepared to initiate early merger talks with partners that have more flexibility in their balance sheets and stronger operational cash flows. Third, consider asset sales and farm ins of partners as an alternative to right out corporate mergers.

Midcap companies' strategy choices are handicapped by

- Less-flexible balance sheets
- Less room for increase of debt gearing
- Poor credit ratings
- Limited equity financing options during a recession
- Less diversified portfolios, which increases the vulnerability to segment underperformance

The latter point applies to

- o Marathon: its portfolio is heavy into downstream activities. Low natural-gas prices and low refinery margins hit the company's flow hard in 2008 and 2009.
- o XTO Energy: low natural-gas prices burdened XTO's 2009 cash flow.
- o Suncor: the drop in oil prices and evaoporating margins of oil-sand plays harmed the company's cash flow in 2008 and continued in 2009.

Strategy actions commonly taken by midcap oils include

- Win shareholder interest by high multiples (P/E ratios).
- Win access to high quality reserves (RRR, R/P ratio) with profitable production economics.
- Negotiate favorable cooperation agreements [high profitability on production sharing agreements (PSAs).
- Negotiate favorable tax regimes (tax rates).
- Avoid operational mistakes (no negative volatility in stock price due to accidents or fraudulent actions).

A premium strategy suggestion is that midcap companies survive in the long term either by merging or selling to a stronger partner, unless an economic upturn occurs fast enough to return the positive cash flows. For example, Marathon can do well, but if the global economic recovery is delayed, it may well need a merger with a financially stronger partner if it is not actually acquired by them. Transatlantic partnerships could be considered as well by such companies as Marathon and Hess. Occidental and ConocoPhillips may be natural partners for a merger. At the moment, Occidental has better cash flow than Conoco, which is looking for divestments rather than acquisitions. Occidental seems well placed to be a first mover. Targets may be Conoco, or midcaps such as Marathon or Hess. Chesapeake is an interesting case itself because of its junk-bond status. This makes it a win if acquired by a well-rated credit party such as, for example, Eni (with credit rating of AA–; see Table 2). But cherry picking of the best assets may be a better strategy. The acquisition of XTO Energy by ExxonMobil means that the expertise and technology to develop nonconventional gas resources has matured to cause a major step change in the oil and gas industry. Previous breakthroughs were 3D and 4D seismic. Now it is the drilling and lifting of oil and gas from nonconventional assets. Technology now paves the way for the accelerated development of nonconventional gas resources (Fig. 10).

Question 3. What can be concluded and learned by juniors and small-cap firms from the recent developments on capital markets? Capital markets limit the strategic options of smaller and unconventional oil and gas companies. The cash flow in such companies has been weaker than for conventional oil companies (oil majors, independents, and PPP oils) over the 5-year period studied (2003 up to 2008). During the 2008–2009 recession, raising supplementary cash from financing sources (debt and equity issues) had become nearly impossible for smaller and unconventional oil and gas players. In contrast, oil majors could still access capital markets under favorable interest rates, and they thus acquire the assets of cash-strapped juniors and unconventionals at attractive prices.

Strategy actions commonly taken by small caps and oil juniors include

- Farm out to better manage risk in high risk assets.
- Dispose of noncore assets.
- Acquire premium assets of distressed competitors using equity financing (inorganic growth).
- Reduce gearing of debt and equity capital.
- Drill attractive prospects (turn options into assets; organic growth).
- Continue to focus on sustained shareholder returns.

Synergy from acquisitions, restructuring, and cost-cutting programs may diminish OPEX and can benefit the earnings of oil and gas companies. The imporved margins also may help to initiate and maintain CAPEX projects for future growth in earnings. The preceding recommendations are no guarantee for success but may help to mitigate early cash-flow problems. No company, big or small, can sustain a cash-flow crisis for long. Insolvency and bankruptcy are among the poor alternatives remaining if all other strategy options have failed.

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