Recent Developments in the Oil & Gas Sector: Implications for European Business

Robert M. Grant

Eni Chair of Strategic Management in the Energy Sector, Università Bocconi

Introduction

I begin with some observations on the oil and gas sectors. I will then look more broadly at parallel trends in other industrial sectors and consider their implications for the future competitiveness of European companies. I will draw lessons for both firm strategy and public policy and close by drawing some implications for the role of business schools in European competitiveness. Although the scope of my talk is broad, there is a single theme. This is that strategies that imitate what other are doing typically lead to poor outcomes and that successful strategies tend to be characterized by four features: first, they are directed towards ambitious goals, second they take account of the competitive environment of the future rather than the past, third, they are innovative and, finally, they exploit what makes an organization *different* from its competitors.

Let me begin with petroleum. The attention that the energy sector has attracted recently has focused upon the record level of oil prices. Yesterday evening crude oil was trading at [$98] a barrel in New York—down on the $102 reached last week, but still well over double the average price during the first eight years of this century.[1] It is worth noting that exactly 10 years ago, the price of crude was $14.33.

Do we need to be concerned about these prices? Certainly for those of us in the consuming countries, the current prices of oil (and natural gas) represent a massive transfer of income to the producing countries as well as boosting inflation and depressing economic activity. But from the point of view of the world as a whole, it is not obvious that high oil prices are a major problem. From a longer term perspective, it may be that the incentive effects of high oil prices in terms of encouraging energy conservation and the substitution of renewable for fossil fuels may allow for slower depletion of the earth's petroleum reserves and counteract the threat to the biosphere from global warming. No one knows what the true social costs of oil should be, however, once we take full account of external environmental cost and adjust for inter-generational social time preference rates, it is may be that market prices have adjusted to something close to their economically efficient level.

However, my purpose is not to discuss the level of oil and gas prices. My focus is the supply side of the market and, in particular, the strategies of the key players.

The paradox of the Western oil & gas companies: financial strength, strategic weakness

For the Western oil and gas majors, the current period is one of unprecedented prosperity. As the slide shows the leading majors have achieved a remarkable combination of high return on capital employed (far in excess of cost of capital), rapid revenue growth, and shareholder returns that have averaged in excess of 20% per annum. During 2007, Exxon Mobil, the biggest of them all earned a net profit of $40.6 billion—more than any other US company ever. Its revenues at $404 billion exceeded the GDPs of all but the world's 25 richest countries. The picture is similar: Total is France's most profitable company. BP is Britain's most profitable company. Similarly for Royal Dutch Shell in the Netherlands and Eni in Italy.

Financial performance of the majors

	ROACE 2005-7	Sales growth (US$) 2003-7	5-year NYSE shareholder return
Exxon Mobil	31.7%	71%	153%
Shell	26.2%	82%	68%
BP	23.9%	73%	71%
Chevron	22.5%	78%	160%
Total	28.5%	87%	124%
Conoco Phillips	16.6%	79%	219%
Eni	20.8%	92%	130%

Yet, despite massive revenues and profitability, the western oil majors are widely perceived to be squeezed into a strategic corner. If we look at *Fortune*'s listing of petroleum companies ranked by revenues—then the majors still dominate. However, in terms of upstream production, the picture is radically different: it is the national oil companies which are the world's leading petroleum producers. For all their financial riches, in operational terms the majors are in long term decline. In 1960, the majors accounted for over 70% of the world's hydrocarbon production. By 2007 their share had fallen to 9%. In terms of hydrocarbon reserves, the contrast is even more dramatic. Currently the world's 12 largest petroleum companies ranked by reserves are all national oil companies (NOCs). Exxon Mobil ranks #16 with a mere 4% of the reserves of the leader, Saudi Aramco, and 8% of the reserves of Qatar Petroleum.

The world's top-20 petroleum companies, 2006

By revenue	*$ bn*
Exxon Mobil	347
Royal Dutch Shell	319
BP	274
Chevron	201
Conoco Phillips	173
Total	168
Sinopec	132
Eni	109
Pemex	97
Petrochina	92
Valero	91
Gazprom	81
Petrobras	72
Statoil	66
Repsol YPF	61
Marathon Oil	61
SK	59
Lukoil	55
Petronas	51
Nippon Oil	48

Source: Fortune

By production	*bn. boe*
Saudi Aramco	3.8
Gazprom	3.3
NIOC (Iran)	2.0
Pemex	1.7
BP	1.6
Exxon Mobil	1.4
PDVSA (Venezuela)	1.2
Royal Dutch Shell	1.2
ADNOC (Abu Dhabi)	1.0
Nigeria NPC	1.0
PetroChina	1.0
KPC (Kuwait)	0.9
Total	0.9
Petrobras	0.8
Lukoil	0.7
Conoco Phillips	0.7
Iraq NOC	0.7
Libya NOC	0.6
Eni	0.6
Petronas	0.6

Source: PIW

By reserves	*(% state ownership)*	*bill. boe*
Saudi Aramco	(100)	301
NIOC (Iran)	(100)	283
Qatar Petroleum	(100)	166
Iraq NOC	(100)	134
ADNOC	(100)	125
KPC (Kuwait)	(100)	108
PDVSA	(100)	102
Nigeria NPC	(100)	65
Libya NOC	(100)	48
Gazprom	(50)	31
Petronas	(100)	25
PetroChina	(90)	20
Lukoil	(0)	20
BP	(0)	16
Pemex	(100)	15
Exxon Mobil	(0)	13
Petrobras	(32)	13
Shell	(0)	11
Total	(0)	11
Conoco Phillips	(0)	9

Source: PIW

External forces or strategic mis-steps?

What we are observing is that, despite their unprecedented financial riches, the Western oil and gas majors are strategically weaker than ever before.

This situation has been created by a combination of geological, economic, and political factors. The basic geological facts is that as the Western countries have exhausted their domestic petroleum reserves they have become increasingly reliant upon other parts of the world—the Middle East, Africa, and former Soviet Union. As energy prices have risen, so bargaining power has shifted towards the producer governments who have used their power to raise taxes, gain larger equity stakes in joint-ventures, and nationalize foreign-owned assets. There are also political factors. After the opening of much of the world's hydrocarbon reserves to international investment during the 1990s, access by Western oil and gas companies to exploration and production opportunities has become increasingly restricted. This can be linked, first, to the ending of the trend towards economic liberalism that characterized the latter half of the 20th century; second if is the result of a rising tide of nationalism among emerging countries. Among oil producing countries this rising nationalism has been fueled by anti-Americanism and also increased antagonism among Russia and Middle Eastern countries towards Europe as well.

Yet, this diminishing international role for the oil and gas majors cannot be wholly attributed to external forces. The Western oil and gas majors have contributed to their declining role in the world energy sector through their own strategies.

Since the late 1980s, the strategies of the majors have been oriented around a single goal: the quest for shareholder value. The result has been two decades of restructuring and cost cutting which has been remarkably successful at squeezing the companies' cost base and boosting the bottom line. The pioneers—BP and Exxon in particular—first subjected their own businesses to downsizing, refocusing, and cost cutting, then applied the same medicine to their rivals by acquiring them—Exxon is reckoned to have squeezed some $4 billion in cost savings from Mobil following their merger..

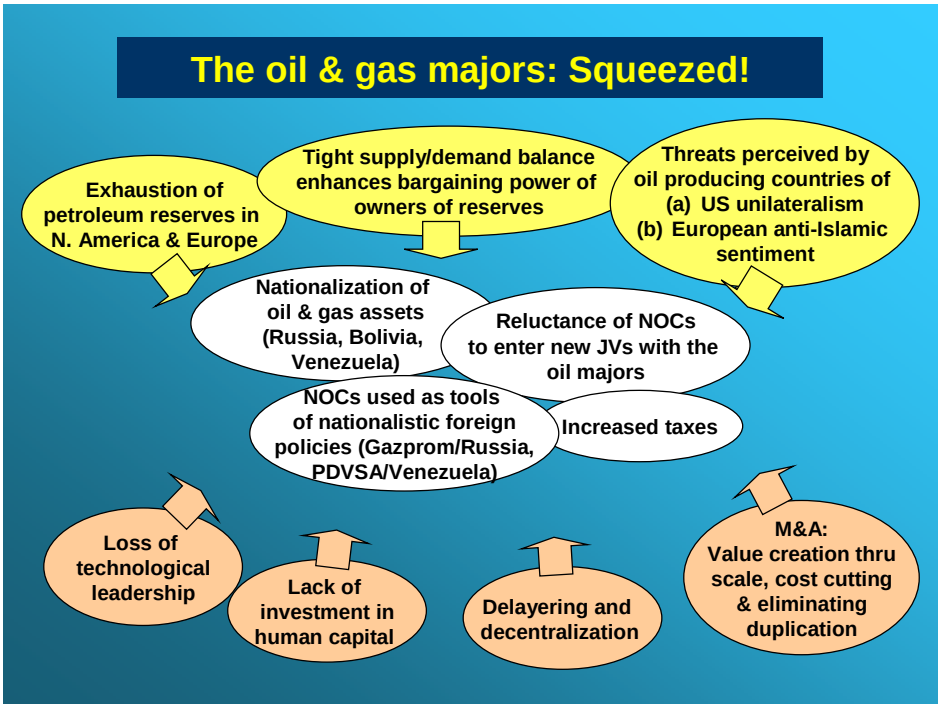
A key feature of cost cutting and "core business focus" has been increasing outsourcing of technology and oilfield services to external providers. As a result, leadership in upstream technology has shifted from Exxon, Shell and BP to the oilfield service companies, led by Schlumberger, Halliburton, and Baker Hughes. During 2000-2007 these three oil service suppliers spent, proportionately to their sales, around ten times what the majors did and each received more patents than any of the majors. Outsourcing also encouraged the majors to reduce their investment in human capital—especially in technical manpower.

While outsourcing has helped the majors reduce costs, it had the effect of undermining their strategic strength—in particular, it has diminished their attractiveness as partners for the NOCs. Access to hydrocarbon reserves for Western oil and gas companies is critically dependent upon the ability to enter joint ventures with the NOCs of producer countries. Yet increasingly, the Western majors have become increasingly dispensable to the NOCs and their role has been filled by technology-intensive oilfield service providers. For example, while most western oil and gas companies have been squeezed out of Russia, Schlumberger has 14,000 employees there.

This pattern of counterproductive strategies is also evident in the organizational changes introduced by the majors. The main trend of the past two decades has been towards decentralization and delivering to improve responsiveness and eliminate the costs of multiple layers of middle managers. The most radical decentralization was by BP which downsized its corporate center and broke up its three major operating divisions into 40 business groups each reporting direct to corporate. This permitted a massive reduction in the numbers of administrative and managerial staff.

Yet, the downside of delayering was in the loss of integrative capacity. One outcome has been increasing difficulty of large companies in configuring themselves to offer the complex combinations of capabilities and service offerings required in order to strike deals with demanding producer governments. As producer countries become increasingly interested in partnerships that offer not only the development of export oriented oil and gas supplies, but increasingly

downstream development, domestic fuel and power supplies, infrastructure development, and technology transfer—so companies that configure themselves to meet complex needs are at an advantage.



Investing in technology: Patents & R&D

	US patents issued 2000-2007	R&D expenditure 2006 ($ millions)	R&D/Sales (%)
Exxon Mobil	494	712	0.2
Royal Dutch Shell	1033	667	0.2
BP	457	462	0.2
Chevron	552	367	0.2
Total	64	789	0.4
Conoco Phillips	411	145	0.1
Eni	140	255	0.3
PetroChina	4	390	0.6
Petrobras	59	410	0.6
Schlumberger	1511	470	3.5
Baker Hughes	1164	184	2.6
Haliburton	1475	238	1.1
Microsoft	n.a.	6989	14.9
Pfizer	n.a.	7880	14.5
Ford	n.a.	8481	4.5
General Motors	n.a.	7098	3.5
General Electric	n.a.	3468	2.3

The overall implication that I draw is this: therefore, is that strategies pursued by Western oil and gas companies over past two decades—focused primarily upon boosting financial performance through merger, cost cutting and outsourcing—have contributed to the majors' forfeiting the

strategic high ground of their industry. At the root of the problem is their tendency to focus upon the wrong group of stakeholders. They have concentrated upon satisfying their shareholders and the financial markets—whereas the key players determining their long term future were the NOCs and the producer governments that own them.

Parallels with other business sectors

The story I have been telling so far relates to a singe industry—one which has viewed itself as a world apart from other sectors of industry. To what extent can we see parallels between trends in the oil & gas sector with those across the industrial sector more broadly? It seems to me, while sector specifics are very different, the broad phenomenon is a general one: across the industrial sector as a whole we see western corporations surrendering the strategic heights of their industries.

- In the same way that the Western oil majors have been displaced by the national oil companies of producer countries, so in other sectors new global leaders are emerging from outside the advanced industrialized nations—sometimes from surprising places. Who would image that the world's biggest producer of short-haul passenger jets would be based in Brazil? Or that the world's second largest and most technologically advanced cement company would be from Mexico? Or that the world's biggest steel company is from India? Or that the world's biggest beer company is South African based (even if its corporate HQ is now London)?
- In other industries, as the world's economic centre of gravity is shifting eastward, so the once dominant position of Western firms is being shaken. In personal computers, the leadership of HP and Dell is threatened by Lenovo and Acer. In mobile phones ZTE a Chinese manufacturer has emerged as a major global player behind Nokia, Samsung, Motorola and Sony-Ericsson. At this year's Detroit Motor Show, the biggest news came from a company that was not even an exhibitor at the show. India's Tata Motors made two announcements that shook the executives of the US car auto producers: first, Tata's launch of is "Nano" car to be priced at €1700; second, its proposed acquisition of Jaguar and Land Rover.

The shifting of the world's economic center of gravity is taking place against a background of a profound change in the nature of international business relations. In 2005, the late Peter Drucker wrote an article titled "Our Mercantilist Future."[2] Now, just three years later it appears that future is already here. The "new mercantilism" comprises the creation of rival trading blocs, the manipulation of exchange rates to promote exports, selective controls and incentives for foreign direct investment, and the global strategies of state-owned enterprises. Most recently it has become manifest in the increased strategic investments in Western companies by the sovereign wealth funds of the governments of China, Singapore, Kuwait, Abu Dhabi, Saudi Arabia, and other foreign-exchange rich countries.

To what extent, like the oil and gas majors, has the weakening global strategic position of Western companies been exacerbated by their own strategies. I would argue that the same factors that contributed to the decline of the oil and gas majors have also undermined the long-term competitive advantage of many other companies. The wholesale adoption of the tenets of shareholder value capitalism has encouraged a shortening of strategic planning horizons and a massive divergence of operating cash flows from investment in R&D and new projects into share buybacks. The leading companies spending vast sums on buying back their own shares include many technology based companies. In 2007, Microsoft, Nokia, IBM, and Cisco spend a total of $48 billion on buying their own shares.

Most worrying is the competitive position of European companies. In terms of innovation, there are few European companies that can claim to be technological leaders within their sectors, moreover, judging by patent performance their positions are weakening—especially compared to companies from Asia. When we look at the broader national picture, the pattern is clear. With exception of the few European countries that have made consistent efforts to build knowledge-based economies (notably the Scandinavian countries), we see most Western countries being displaced by emerging competitors such as Taiwan, Korea, Singapore, and Israel.

Top 25 recipients of US patents, 2007

1.	IBM	3148
2.	Samsung Electronics	2725
3.	Canon	1987
4.	Matsushita Electric	1941
5.	Intel	1865
6.	Microsoft	1637
7.	Toshiba	1549
8.	Sony	1481
9.	Micron Technology	1476
10.	Hewlett-Packard	1470
11.	Hitachi	1397
12.	Fujitsu	1315
13.	Seiko Epson Corp	1208
14.	General Electric Co	914
15.	Infineon Technologies	856
16.	Denso Corp	803
17.	Texas Instruments	752
18.	Ricoh Co Ltd	728
19.	Honda Motor Co	719
20.	Siemens	700
21.	LG Electronics	684
22.	Nokia	682
23.	Sharp	667
24.	Fujifilm Corp	662
25.	NEC Corp	617

By nationality:

Japan	*13*
U.S.	*7*
Europe	*3*
Korea	*2*

***Source*: US Patent Office**

Innovation among nations

	US patents per year 1963-85
USA	50490
Japan	5913
Germany	5778
U.K.	3000
France	2184
Canada	1239
Switzerland	1209
Sweden	812
Italy	752
Netherlands	692
USSR	296
Belgium	268
Austria	258
Australia	236
Denmark	155
Finland	97

	US patents per year 2000-06
USA	85286
Japan	33857
Germany	10429
Taiwan	5471
South Korea	3743
France	3629
U.K.	3614
Canada	3400
Italy	1600
Sweden	1443
Switzerland	1271
Netherlands	1257
Israel	1021
Australia	934
Finland	803
China (& HK)	543

	US patents per million people per year 2000-06
USA	283
Japan	265
Taiwan	226
Switzerland	167
Sweden	160
Israel	160
Finland	154
Germany	126
Canada	101
Singapore	77
South Korea	76
Netherlands	76
Austria	66
Belgium	62
U.K.	59
France	59

***Source*: U.S. Patent Office**

The conclusion that the production of knowledge is a problem for governments as well as companies is apparent when we look at human capital. International comparisons of educational attainment reveal a very similar pattern to that of patent statistics. The countries with the highest educational levels are those of East Asia together with a few northern European countries. Indeed, there is a close correlation patent performance and the educational levels of 15 year olds. The picture for Europe is clear: while a few countries are keeping up with those of East Asia in building a knowledge-based economy, many others—notably Italy, Spain, UK, and France are falling behind.

Educational standards

Performance of 15-year olds in standardized tests

	Math Score	Science Score
Taiwan	549	532
Finland	548	563
Hong Kong	547	542
S. Korea	547	522
Netherlands	531	525
Switzerland	530	512
Canada	527	534
Japan	523	531
Germany	504	516
Estonia	515	531
France	496	495
Poland	495	498
U.K.	495	515
Russia	476	479
U.S.A.	474	489
Italy	462	475
Turkey	423	424
Mexico	385	410

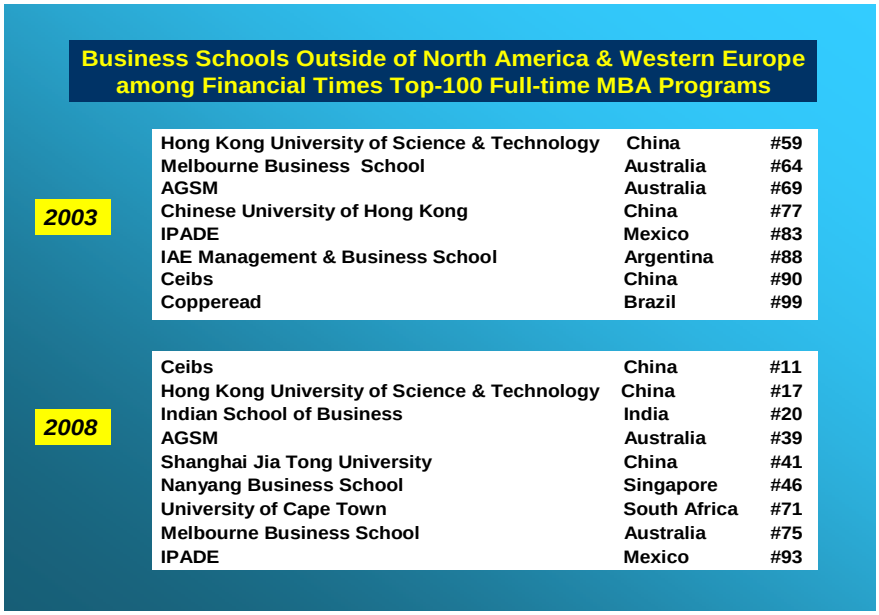
***Source:* OECD Program for International Student Assessment, 2006.**

What does it mean for European business schools?

What does this all imply for the role and the strategies of the European business schools—Bocconi in particular? The first thing to note is that the same international competitive forces and geographical shifting of competitive advantage seems to be happening in the world of business education as well as in the corporate sector. Not only are the markets for students, faculty, and ideas becoming more global, Western business schools are being challenged by new schools in new locations. As the slide below shows, business schools from outside of North America and Europe are becoming more prominent on the international scene. The fact that the MBA program of the China Europe International Business School (Ceibs) is ranked by the FT above those of New York University, Yale, and Dartmouth is remarkable. The good news for the European business schools is that they are continuing to gained ground on the US schools.

If the markets in which the European business schools operate are becoming more global and more competitive—what strategies should they be pursuing? Given the picture I have painted of challenged facing the business sector within Europe, I consider that a central role has to be enhancing the competitive performance of European business. While virtually all business schools articulate in their charters and mission statements the effective management of business through research and teaching activities—in practice maintaining a commitment to these goals is not easy. The strategic direction of a business can easily be deflected towards narrow—even dysfunctional—goals. There are three particular dangers which I believe that European business schools need to steer clear of:

- The first is a retreat into elitism. One of the most dangerous developments in market capitalist societies of the past quarter century is the creation of a managerial class whose levels of income and options-driven wealth is a threat to social cohesion. To the extent that business schools present themselves and gateways to a privileged class of executives and investment bankers, where the critical benefit of a business degree is access to the alumni database, then we become part of the problem of declining competitiveness rather than part of the solution.
- A second risk is that the intensity of international competition between business schools means that we become so focused on external rankings of schools that we lose sight of fundamental goals. The rankings may be guide to external perceptions of relative performance—using the well-known Zen analogy, the danger is that we mistake the finger pointing at the moon for the moon itself.



- The third risk—and one that can result form a slavish commitment to climbing the rankings—is that is that the European schools fail to exploit their unique resources and distinctive competences and imitate the strategies of schools that are viewed as leaders. One of the greatest challenges of strategy making is avoid the propensity to adopt contemporary wisdom and imitate the approaches of leaders. The worldwide dissemination of the shareholder value management model and the strategies associated with it—restructuring, cost cutting, outsourcing, delayering, and performance incentives—offers a powerful example. The securitization and risk management activities of banks in the markets for subprime loans offer another example of convergent behavior.

  Are business schools suffering from the tendency towards institutional isomorphism driven by mimetic strategy making? Returning to Europe after two decades in North American business schools has been an interesting experience for me. One of my most surprising observations has been the extent to which European schools have adopted the institutional practices of US business schools. In MBA curriculums, expectations regarding faculty publication, procedures for tenure and promotion, and the increased adoptions of the English language, Europe schools are becoming much more like their American counterparts. For the most part, these features of the US business school system have been highly beneficial. Most important has been the raising of performance expectations with regard to research output and the increased diffusion of knowledge that has resulted form the creation of international movement of students, faculty, and ideas.

  At the same time, I perceive risks arising form the global ascendancy of the US business model. Many features of the US model are the result of adaptation to specific features of the US business school environment. In particular, a distinctive feature of US business schools is that almost within pre-established universities. As a result a major force conditioning the evolution of business schools has been the quest for legitimacy within academic environments dominated by the norms and values of natural sciences and the humanities. In particular, conformity to the methodological paradigm of the natural sciences has resulted in a tendency for norms of scientific rigor to trump relevancy in the design and conduct of research.

The reason I am here s because I believe that European business schools—and Bocconi especially—are faced with tremendous opportunities. But if we are to exploit these opportunities then we need to avoid the strategic errors that I have identified among the oil and gas majors and among European corporations more generally. Our development strategies need to embrace the four principles that I outlined at the beginning.

First we must set our sights high. The existing criteria used to rank business schools are not demanding enough and should not be adopted as our primary performance metrics. For example, MBA rankings give a bog weighting to graduates' salaries. Of course we should seek to enhance the careers of our students, but committing to maximizing the salaries of our graduates would be dangerous and dysfunctional. Similarly with research the usual criteria for research—numbers of publications in top tier academic journals for example—are not demanding enough. Even top tier journals carry articles that very few people ever read and which do little to influence thinking about business and management let alone business practice. As I have indicated, the challenges facing European businesses are serious. If Europe has a future as a centre for culture and civilized values, it needs a vibrant business sector. European business schools and Bocconi in particular need to can offer a major contribution to this. Our strategies need to be focused upon a broad commitment to business and economic development.

Second, we need to focus our development on the world of tomorrow, not of yesterday. If we focus too much on international rankings, the risk is that our vision of the future is based upon what leading schools did in the past.

Third, we must embrace innovation. A paradox of business schools is that while we study innovation, we are remarkably uninnovative as institutions. The opportunities for innovation in teaching, in research methodology and modes of research dissemination are vast. We need to self-confidence to abandon institutional norms and discover better approaches.

Finally, we need to exploit the unique opportunities that are available to European business schools. Free of the institutional norms of universities rooted in the humanities and natural sciences, European business schools have the opportunity to forge closer relations with the business community and the world of practice, and face less pressure for orthodoxy in research and teaching. As a result, I see a critical advantage of European business schools is their potential for generating knowledge about organizations and their management that is innovative, relevant, and has the potential to profoundly influence business practices. In the case of Bocconi, my experience during my first two months have done much to reinforce my belief that the combination of strong academic foundations, high quality human capital, a rich international network, close ties to the business community, and a commitment to long-term international success is resulting in research that has addresses important phenomena, has the potential for a high impact in the academic sphere, and has rich practical implications.

NOTES:

[1] The average NYMEX price of WTI crude for 2000-2007 was $41.50.
[2] Peter Drucker, "Our Mercantilist Future," *The National Interest*, Spring 2005