

**Human, all too human...**  
**-On the behavior of scientists and universities**

**VERY PRELIMINARY!!!!!!!**

**Comments welcome!**

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**Introduction: the scientist as yet another fallen angel.**

Economists like to portray managers as the proto-type of the self-interested “ Homo Economicus”. While one could interpret this managers-bashing as a form of respect (doesn’t self-interest lead to maximizing of social utility?), most managers do not appreciate this image:” *The managers are seen as seeking to minimize their productive effort, to give the organization and its owners as little as possible and to extract the maximum returns from the organization in pay, perquisites and leisure (Jensen and Meckling, 1976)... To say the least, this is a highly damning picture of managers and their motivation. (Donaldson (p. 181).”*

At the same time, economists like to see themselves as being motivated by ‘internal’ incentives and not by money or other mundane pleasures. Maybe this too, is due to Adam Smith: “*Mathematicians and natural philosophers, from their independency upon the public opinion, have little temptation to form themselves into factions and cabals, either for the support of their own reputation, or for the depression of that of their rivals. They are almost always men of the most amiable simplicity of manners, who live in good harmony with one another, are the friends of one another’s reputation, enter into no intrigue in order to secure the public applause, but are pleased when their works are approved of, without being either much vexed or very angry when they are neglected’* (Smith quoted in Diamond,1992)

The advocates of the managers did note this strange discrepancy and bounce the ball back: “*If intangible processes such as outside reviews, word of mouth and reputation suffice to control academics, why in the case of managers is there the necessity for a complex machinery of governance, of incentives and control systems, of carefully crafted contracts, of optimal financial reward and debt funding provisions, in short the whole panoply of institutional arrangements which requires research by agency theorists. Why does the problem of agency for managers require a social scientific literature whereas the idea of an agency problem among academics is the stuff of light comedy, settled on the first page. This illustrates the curious, or not so curious asymmetry of agency*

*theorists, for whom their behavior is off-limits. The only sense we can make of all this is that agency theorists are willing to ascribe to managers a greater level of mendacity and deviousness than agency theorists ascribe to themselves (Donaldson (p. 181)."*

Though the core of his remark is certainly right, it's also somewhat exaggerated: the idea of self-interested scholars did appear already quite some years ago in philosophy (Kuhn,...) and sociology (Merton,...). Still, it's true that economists only recently increased their interests in this kind of issues, a movement generally named 'the economics of science' (see Tullock(1993), Diamond(1996,1993), Stephan(1996), Dasgupta and David(1994), Frey(2000)).

It's not that difficult to show that scientists behave just like any other human being. The idea that "money matters" even for academics can be illustrated best by some recent press-articles. First, the Washington Post (05/04/1999) noted that Microsoft seduces more and more researchers away from the universities: *'Base salaries -- well into six figures for senior researchers -- are on par with those at most major universities. But stock options are the X-factor, and it doesn't take a Wolf Prizewinner to calculate the profits reaped by Microsoft options-holders this decade... Researchers insist they've not been lured merely by wealth. In a dozen interviews last month, they characterized Building 31 as research nirvana, where ideas can transcend the numb abstraction of academia and shape a mass market... The abundant resources make for a collegial environment. "Fights in academia could get pretty vicious because the pie was so small"...'*

Similarly an article in the Wall Street Journal (19/02/1999) asks, *"How did Stanley Fish, anointed savior of Duke University's English department and a certified academic show horse, end up at the Chicago campus of the University of Illinois, considered even dowdier than its step-sister at Urbana-Champaign?... How does \$230.000 sound for a start?...Mr. Fish once said he wouldn't read poetry if he weren't paid for it. "The notion of a higher purpose was a holdover from the 19<sup>th</sup> century," he says, "when going into the academy was an extension of class. Now academics are like any other commodity."*

Economic self-interest is further reflected through the preferences of women for the ‘softer’ sciences: the depreciation of knowledge is slower for these disciplines and thus, the negative effects of childbearing are reduced (McDowell (1982)).

That scientists aren’t “*men of the most amiable simplicity of manners, who live in good harmony with one another*” can be illustrated by the controversy about the role of lawyers in the economy. Some economists had the cunning idea to proxy the degree of rent seeking in a country by the number of lawyers and found that lawyers decrease economic growth (see Laband and Sophocleus (1988) and Murphy et al. (1991)). As a counterattack, a law-scholar wrote an article with the not-to-be-misunderstood title: “The First Thing We Do, Let’s Kill All the Economists” (Cross, 1992).

And they aren’t insensible to the influence of personal relations or of “authority”: this is shown by the fact that double-blind peer reviewing leads to smaller acceptance rates and more critical reviews than single-blind peer review (Blank,1991). Personal motives also help to explain why in-house-editorship increases the number of articles written by affiliated-economists (McDowel and Amacher, 1986) and also more lengthy articles (Laband, 19XX) . And why the authors of departmental rankings of research-performance always seem to find higher rankings for their own universities, compared to their place in the ‘National Research Council’-rankings. (Feinberg,1998).

Environmental circumstances do influence them in their choice of subjects and solutions: economists write more papers about inflation when inflation is high ( Laband et al,1990) and cite older works during depressions (because, as current policies are not working, they look to past theories)(Goff et al 1987).

To end with a climax: you can’t even take the trustworthiness of scientists for granted<sup>1</sup>. The not-so-negligible number of discoveries of scientific misconduct illustrates that scientist are prepared to use less honorable methods to advance their careers (Wibble(1998)).

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<sup>1</sup> “The greater a man’s talents, the greater his power to lead astray” (Aldous Huxley, Brave new world)

The consequence of this all, is that the image economists have of the ‘scientist’, now undergoes the same evolution, as the image of the ‘politician’ earlier on: the ‘politician’ too had an image of being an altruistic person, only interested in the ‘social utility’, but during the last 50 years, this idea has been professionally tackled by the ‘public choice’ school.

### **What are the consequences for the organization of universities?**

So scientists are human, all too human... Hence, even for scientist there’s a *‘necessity for a complex machinery of governance, of incentives and control systems, of carefully crafted contracts, of optimal financial reward and debt funding provisions’*.

In this paper, we’ll describe such mechanisms that are used by universities to keep their employees in check and compare these methods with those that are used in the business-world. Of course, universities can be considered as nothing more than firms run by scientists. So we have to allow for universities that act in their own interest rather than in the interest of any third party. Thus, we’ll also consider examples of such self-interested behavior of universities and the mechanisms that third parties can use to keep their universities in check.

### **Part 1: the university and its components**

- **universities and their employees**

The incentives in the academic world are almost exclusively of the ‘career-concerns’-type. Better work doesn’t lead to immediate pay-rises but rather to increased chances on future pay-rises, promotions, tenure or prizes.

For research, Siow(1990), Hansen et al (1978) and Hamermesh et al (1982), all find that more productive faculty (measured as the stock of publication) earn higher salaries. Graves et al. (1982) further find that departments that have a high number of published

works per faculty member are departments that pay more to researchers, have more secretaries per researcher and have lower teaching loads.

Teaching is generally seen as a less rewarding job, at least in monetary terms. Still, Fairweather(1996) finds no conclusive evidence when reviewing the literature: there exist studies that find positive, negative and neutral relationships between teaching-performance and salary.

Frank (1985) shows further that wage differences in academe are small, much smaller than f.e. the contribution a prof makes to indirect costs and he sees this as an indication of the importance of 'status', which can explain why people aren't rewarded according their marginal products. However, he questions at the same time whether this marginal productivity-principle does hold in the private sector. But Freeman (1975 cited in Becker) finds that, at US universities, interfield coefficients of variation are far lower in academic than in industry or government pay structures.

(COUPE 2001?)

In several European countries, salary isn't differentiated by field, thus creating difficulties for those disciplines where there's an imbalance between salaries at universities and salaries outside science. However, the creative use of promotions or pay scales can soften this problem. Bowen (1964) finds, for British universities that science faculty get promoted faster than Arts faculty<sup>2</sup>. Another element that could make pay differ is the differing chances on outside research- contracts<sup>3</sup>.

There are several prizes for research, of which the Nobelprize is likely the most widely known one<sup>4</sup>. Prizes do also exist for teaching (see f.e. the Economist(13/04/1996) or Forbes(19/06/95)). But some suggest that receiving such teaching-prizes is rather a

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<sup>2</sup> Surprisingly, Argyres and Liebeskind (1998) write similar things about US universities: "... the pay of faculty in professional schools is invariably higher than of faculty in Colleges of Letters and Science (although pay differentials are often only achieved by imaginative adjustments to uniform pay scales)".

<sup>3</sup> One Belgian university f.e. allows the researchers to retain half of the net-'gains' ( KUL Jaarverslag 1997).

<sup>4</sup> Still, the fame attached to this prizes are restricted to the professional community: on the day that the Nobel prize committee had decided to attribute the Nobel prize to Amartya Sen, the Flemish television-news considered the sacking of a local football-trainer as one of the headlights, while mentioning the Nobel only as a side-issue.

danger for a career in academia (Forbes,19/06/95)<sup>5</sup>. Interesting is that teaching prizes are usually university-bound, in contrast to the footloose research prizes, thus restricting their fame to the local community. Other bonuses take the form of royalties paid to inventors or gains from research contracts that can be appropriated by the scientists as extra wage<sup>6</sup>. Again prize-incentives are not restricted to the academic world. Many companies have 'employee of the month'-prizes and across firms, you have the 'Manager of the Year' contests organized by newspapers and magazines (f.e. Business Week has an annual top 25), though the latter have no money connected to it, unlike most research-prizes in academe.

Baker and Al (1988) conclude their review of practices in the business world with the observation that there's a dominance of promotion-based incentive systems. The academic world, hence, isn't an exception.

More specific to academia is tenure (though not exclusive f.e. consulting firms or in justice)<sup>7</sup>. Several reasons have been advanced for the existence of tenure ranging from its supportive role for academic freedom to the idea that it is necessary to induce existing faculty to choose competent new professors (see Brown (1997) for a review). Anyway, the advantage for the researcher is the high degree of safety tenure brings, though partially he pays for this security: Ehrenberg et al. (1998) find that smaller chances on tenure slightly increase the starting wage.

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<sup>5</sup> "PUBLISH OR PERISH: A Well-Liked Professor is Bumped by Rutgers." That was the headline in the New York Times. Perhaps the most surprising thing about the story was that anyone was surprised--or even considered it news. The story was all too familiar. Professor Richard L. Barr had won three awards for his teaching during his six years at Rutgers University and was then told that his contract would not be renewed. This has happened so often, on so many campuses across the country, that many in academia regard teaching awards as the kiss of death. Two of my college roommates went into teaching and each won teaching awards, one at Harvard and the other at M.I.T. Each was then told that his contract would not be renewed. A quarter of a century ago, a colleague who had the same experience at Brandeis University referred to the teaching award as "travel money."

<sup>6</sup> F.e. at Stanford, the inventor gets 1/3 of the revenues of his invention. For more examples see Janssens (1996).

<sup>7</sup> Though not absolute safety: financial difficulties of the university or misbehavior of the professor break the tenure-clause.

Concerning other monetary wage benefits, Woodburry and Hamermesh (1992) present data that indicate that the increased relative importance of these fringe benefits in the academic sector, parallel the evolution in the business-world.

Next to the monetary rewards, there are the non-monetary fringe benefits. Universities do seem to make use a lot of these. University staff, especially profs, tend to have a lot of freedom: they choose their working hours individually, they almost autonomously choose the contents of their teachings etc. Some universities even allow their faculty to work for their own business (Thesis 23/04/99)<sup>8</sup>. While the amount of freedom is probably a lot higher in academe than in firms, the principle itself isn't unknown in business. Tapon and Cadsby (1996) f.e. describe a pharmaceutical firm that allows its researchers to use up to 20% of their time on their own curiosity-driven projects. In addition, Argyres and Liebeskind (1998) find indications that some US-universities are coming back on this absolute freedom: while earlier on rules on outside activities were unwritten and unenforced, they now become more and more explicitly written down in individual contracts or university-wide documents. HERE SCOTT 2000 DO Scientistst pay to be scientists

- **Universities and their departments : Internal competition**

Universities are far from monolithic entities as they conglomerate different kinds of knowledge. And this has consequences for the university: the Carnegie International Survey of the Academic Profession reveals that “*faculty express strong loyalty to their disciplines and fields of study, but they have significantly less commitment to their own colleges and universities*”(Lewis and Altbach,1996). The fact that first, this isn't a new phenomenon, and second that universities see this as threatening is illustrated by the ‘University Fellows Program’ at Stanford University in 1969: ‘*Today’s American University is more centrifugal than it is centripetal. The discipline rather than the*

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<sup>8</sup> Cambridge ‘frowns’ on academics involved in more than one day a week of private consultancy work. Newcastle University allows the academics to keep whatever they earn from up to ten days of consultancy a year. And the Oxford Business School wants to give £10000 a year extra to those academics in exchange for not undertaking more than 30 days of private consultancy work a year.

*institution commands the attention and allegiance of the individual faculty member. Rewards, including the reward of self-esteem, come from the recognition of one's work accorded by one's peers. One's peers are fellow specialists in molecular biology, or French drama of the classical period, or social stratification. In the nature of things, there are apt to be more of them outside than inside one's home institution. And, increasingly, the professor is likely to have a number of homes away from home. Mobility combines with disciplinary loyalty to undermine the development of interest in the institution and its problems. Not surprisingly, the institution itself tends to become incoherent: a collection of more or less independent satrapies uneasily presided over by a small group of harassed bookkeeper". So the need was felt to create a 'University Fellows Program' to 'induce more 'men of good academic caliber' to see themselves as university men'<sup>9</sup>, (Hastorf,1996)'.*

One of the consequences of this is that departments will try to further their own interests rather than think and act in the interest of the university as a whole. As a consequence, there exists competition within the university. A nice example of this is what happened at Indiana University (Thesis/Marcus, 1999). Between 1990 and 1997, the enrollment of the college of arts and sciences declined with about 40%. But " *since the university's budget is divided among its various schools, based on the number of credit-hours they teach, the college of arts and sciences has run a deficit of between \$1 million and \$1.5 million dollar in each of the past three years, and has had to borrow to make ends meet.*" So the college reacted: "*the college tried luring incoming students away from the university's popular pre-professional programs with colorful advertisements on campus shuttle buses, in newspapers and on posters*".

Another example that could be interpreted as a sign of internal competition is that the differences in grading policies of departments at a US-university influenced the distribution of enrollments over departments (Sabot and Wakeman-Linn, 1991,JEP).

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<sup>9</sup> Female readers should keep in mind that this was written in 1969.

Such internal competition, however, happens too in the business-world: f.e. Merck-DuPont Pharmaceutical, a joint venture of Merck and DuPont, competes with Merck, that thus created a benchmark for itself (Tapon and Cadsby(1996)). Similarly, Andersen worldwide consists of Andersen Consulting, specializing in management consulting and Arthur Andersen, the latter specializing in accounting and tax consulting. However, the latter has ventured itself in the management consulting too, leading to tensed relations. (see Forbes 03/11/1997). And at the beginning of the 90ies, the business units of IBM were free to compete with each other (Fauli-Oller and Giralt (1995)).

- **The universities and its managers**

*The task of the university management*

Above we described the internal competition between departments. At the same time, universities have installed certain mechanisms that try to manage the whole institution and thus try to keep this competition into certain limits or to influence the results of this competition in a way the universities as a whole prefer.

The tuition-policy of universities, for example, has similar internal consequences. In general, universities do not differentiate tuition according to subject although it is clear that costs differ from one subject to another. This means that expensive subjects are made more attractive then they would be otherwise, thus that some students are lured away from the cheaper departments. At the same time, this destroys the incentives of departments to keep costs down. Many US-universities use price discrimination so they set a high sticker-price and then allow for discounts that are a function of the present wealth. Future wealth, which is subject related, isn't taken into account, thus shifting demand towards those subjects with higher returns (see WSJ 17/09/1998<sup>10</sup>).

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<sup>10</sup> "The Cambridge, Mass., school said it wants to reduce the debt of its graduates, who now borrow an average of \$20,000 to help finance their education, and to reduce the amount of time they must spend earning money while in school. A year at Harvard now costs \$31,132, and 70% of students receive financial aid. Because they want to pay off debt, a troubling number of graduates have been forgoing

Central offices of universities act yet in other ways like an ‘internal capital market’. Such an internal capital market can be used to ‘invest’ in the most promising research projects and most attractive study-programs (instead of investing in the department where the money originated) but many academic institutions try to remain “egalitarian” and thus try to redistribute income from the poor to the rich (see f.e. Cohen and Noll(1998)).

Some illustrations. First of departments that kept the money of their inventions

- Koepnick (1995): “the FM-royalties helped the Center for Computer Research in Music and Acoustics grow from a one-room lab into a multi-disciplinary research center (and) have nearly reached the projected endowment level, which means the Center will soon be able to survive indefinitely at its current staff and student level”
- Janssens (1996) cites an invention for which 90% of the income was assigned to the research foundation of the inventor, while 10% was assigned to the university.

Second, some examples where funds were channeled from rich to poor rather than redirected towards the more ‘profitable’ investments.

- Smith (1992, p. 67-about University of Oklahoma): “*Enrollment in geosciences has decreased by almost 50% since 1982. Primarily as a result of the decrease in enrollment, the per student funding in geosciences from FY 1982 to FY 1990 rose in real terms by 61%.*”
- Argyres and Liebeskind (1998):“*innovation in biotechnology however does not naturally improve the study of areas such as humanities, and so, universities had to ‘create ‘ positive spill-overs through the sharing of royalty income with other (especially non-science) departments. Matkin (1990) and Williams (1994) report that 84 % and 100% (respectively) of the universities they surveyed reallocated royalty*

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careers in teaching, social work, and the arts in favor of more lucrative careers in business, says Harry Lewis, dean of Harvard College, the undergraduate part of the school.”

*income between departments, with the reallocated shares reaching as high as 85% of the net royalty income“.*

- In 1997, the hospital of the University of Leuven made a loss of 2 billion BEF<sup>11</sup>. The 700 million BEF expected loss for 1998 would be paid by the university because the reserves of the hospital were empty (Winckelmans(1998)).

Moreover, Ehrenberg et alii (1993) find more systematic empirical support for this crowding out effect: *‘these estimates suggest that increases in the overall number of (graduate) students supported by external funds in the science and engineering fields are used partially to subsidize graduate students in psychology and mathematical sciences’ and ‘an increase in the number of non-engineering students supported on external funds is associated, ceteris paribus, with a decrease in the number of engineering students supported on internal funds... This may reflect the politics of the allocation of internal funds within institutions, with fields that are relatively successful in generating external funds (engineering) losing some of their ‘internal clout’ when other fields’ success increases.’ (Though effect of both is relatively small: 100+2, 100 –3à5).*

Note that this phenomenon is a characteristic of educational institutions all over the world: for the UK, see Segal et alii (1996), Belgium (VLIR) and Holland (KUB-tijdschrift).

This ‘internal capital markets’-idea has long been seen as one of the reasons of the existence of firms. Recently, however, this idea has become more and more questioned (Bolton and Scharfstein,1998) because several studies find that these markets do not work like they should: instead of investing in the departments that are most profitable, they rather subsidize less performant divisions. Lamont (1997) f.e. shows that after the negative 1986 oil-shock, oil companies significantly reduced their nonoil investment compared to the median industry investment.

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<sup>11</sup> About 50 million US\$.

### *Managers vs. faculty*

Different universities have chosen a different balance in the power between central university managers and the local faculty. Masten (1999) finds that large research-oriented universities tend to share academic governance between faculty and administration while smaller, specialized schools and public and Catholic institutions do rely on more powerful administrators. Kissler (1997) shows that in general budget decisions are dominated by the president and the provosts and that faculty have only limited influence. For academic matters influence seems to be more equilibrated.

Some claim that the way power is distributed does affect outcomes: McCormick and Meiners(1988) find that increased faculty influence decreases the research-output of economics departments and reduces the average SAT-score of entering freshmen. Brown (2001) argues that the relationship between influence and performance differs according to the nature of the decisions and finds that more faculty influence with respect to decisions concerning the appointment and the tenure of academic staff, goes together with better performance. The opposite is valid for decision concerning the selection of the academic managers (deans, presidents).

### *Can we trust the university managers?*

University managers combine the characteristics of managers and scientist so one can't expect their behavior would be more 'morally correct'.

Kesselring and Strein (19XX) found that universities that have higher then expected (on basis of output) expenditures also have higher administrative expenditures which they see as evidence for excessive expenditures by the administrators. Another example that could point in this direction: in Holland, the executive board of the University of Utrecht raised its own wages between 20 and 35% and motivated it by their "long-term well-functioning"! (De Telegraaf 14/03/1997). Finally, De Groot and Van Der Sluis (1987) show that departments of a Dutch university with higher rates of faculty turnover where

hit harder by budget cuts which they explained by a conflict-avoiding policy of the university administrators.

**Part 2: universities and their stakeholders**

• **Universities and their donors: the philanthropy-market**

For European university administrators, reading a US-newspaper leads to envy. Just consider the amounts of philanthropic money that flows to universities, as witnessed by some recent articles in the WSJ.

Date	Name	Bus-fct	Gave X	university	Univ fct	Rename
28/10/98	Walton		39.5 million	U of the Ozarks	trustees	Yes
01/05/98	Allen	Banker	20 million	Williams college	alumnus	
01/05/98	Weil	CEO	100 million	Cornell Medical College	board of college	Yes
01/05/98	Annenberg		120 million	Uof Pennsylvania		
01/05/98	Annenberg		120 million	Uof Southern California		
28/01/98	Goizueta	CEO	20 million	Emory		Yes
15/01/97	Marchall	Chairman	35 million	Uof Southern California	trustee	Yes
06/05/96	DuPree	CEO	25 million	Georgia Inst. of Tech.		Yes
10/09/96	Thomas	President	22 million	Harvard	alumnus	

And an article in Fortune about the top 40 of most generous Americans notes:

*“Many of last year’s major contributions went to colleges or universities, continuing a trend of 20<sup>th</sup>-century philanthropy. Sixty percent of 1997’s donors gave to higher education, vs. 64% in 1996. For someone seeking a safe place to plunk down an eight-figure contribution, an established school, especially an alma mater, is an obvious choice. Moreover, universities, especially during capital campaigns, offer to name buildings after big donors—all the better for those who hope to trade their altruism for intimations of immortality. Sixteen members of the Fortune 40 had university buildings named for them last year” Fortune().*

Of course, there’s no free lunch so universities have to “buy” their donations<sup>12</sup>. Renaming a building to the donor is a traditional way but there are others. Some woo their alumni by organizing special voyages, which they sell at cost: *“Money from the trip goes to cover costs. Instead, the schools hope that by performing this service for their alumni they will engender goodwill and rekindle the former students’ attachments to their alma mater. People who can afford this kind of travel, university officials say, can also usually afford to give something back to the schools.”* And the creativity of academics does show up in their Fundraising campaigns: universities send letters to remind donors to give money if they don’t want to be bothered by the telephone-fundraising actions. (WSJ,20/10/97)<sup>13</sup>. And what do universities that were only recently founded and thus

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<sup>12</sup> One might even wonder whether the goal of universities is still education and research: “Baylor Alumni Association President Lyndon Olson, chief executive of Travelers Insurance Holdings Inc. in New York, worries that the turmoil on campus will detract from the university’s more-critical business -- such as fund raising.(WSJ 11/09/96)”

<sup>13</sup> The people running Georgia State University’s 1997-98 annual-giving campaign are offering past contributors what could be an irresistible proposition: Send in your pledge by Sept. 20 -- and no one will call you at home. The Atlanta University made this known to alumni last month in a letter beginning, “How many times has this happened to YOU?”—followed by a scenario of an alumnus, worn out after a hard day’s work, disturbed by the annual-giving call. The letter went on, “Don’t let us interrupt your dinner!!” and promised that the recipient’s name would be removed from the telemarketing list if the pledge is received by the deadline.... Georgia State isn’t the only college to use a telemarketing-avoidance pitch as a donor inducement. In the last academic year, the University of Central Florida Foundation sent out postcards with a photograph of Matthew Hodge, its assistant of annual giving. The picture was taken when Mr. Hodge was two years old and shows him holding a telephone. The caption below threatened, “Don’t make me have to call you.” Donations went up by almost 30% as a result of the mailing, Mr. Hodge says. For the alumni of Trinity International University in Deerfield, Ill., the reward for donors is a “non-invitation.” In the 1995-96 academic year, Trinity International informed potential contributors that their gifts would let them out of attending a fund-raising event. “No sitting with someone whose cologne is too strong,” offered the appeal.

have few old (and hence rich) alumni: they organize courses for the retired (WSJ, 06/03/1997)<sup>14</sup>!

In this fundraising-business, economic constraints sometimes invade academic values: a Taiwanese foundation that wanted to sponsor a center, asked that the center would be named after a politician (the son of Chiang Kaishek). Stanford and Columbia said they wouldn't apply for the grant but Berkeley would, the university "had been hurt by budget cuts and many of its graduate students in Asian studies are financially strapped" (WSJ 29/11/1996). And the universities' political stance should be kept in congruence with their donors': "*Investment guru Barton M. Biggs of Morgan Stanley Dean Witter Inc. gave money in the recent fundraising drive. But he said, "I'm not entirely happy with Levin's academic programs. The university is too liberal."* (WSJ 14/10/1998).

Although universities prefer unconstrained endowment, donors often earmark funds. However, such constraints are circumventable: if external support increases, the university can diminish the internal support. Or they just 'forget' the constraints such as Yale university that filled places earmarked by the donor for new faculty by existing faculty (see Time 27/03/1995)<sup>15</sup>.

Corporate donations are even more restraining, in the sense that many of them identify the subject areas for which the donations should be used and some even go as far to explicitly demand the tenuring of certain profs ((WSJ 06/02/1998))<sup>16</sup>!

One could have the impression that donations to universities and colleges get only attention in the press. However, articles (albeit less juicy ones) about giving to education can be found in economics journals too. In these articles, school-related variables (such

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<sup>14</sup> To boost ties to wealthy residents in the area, Eckerd started its Academy of Senior Professionals, which taps into St. Petersburg's large retirement community. The 320 members each pay \$360 for a program that includes courses, socializing, helping in classes and providing career counseling to undergraduates. Some members have become donors, and Mr. Armacost says "several million [dollars] have been committed in estate planning." He adds, "The academy has given us a constituency of senior citizens that the college wouldn't have had as [alumni] for 20 to 30 years."

<sup>15</sup> See appendix for the whole story.

<sup>16</sup> See appendix for the whole story.

as fundraising expenditures f.e. in Harrison (1995) or Harrison et al (1995)) or alumni characteristics (f.e. Okunade(1996)) are found to be important.

A hopeful conclusion comes from Steinberg (1986) who finds that ‘educational’ nonprofits maximize the net revenues of fundraising (and concludes therefrom that they are ‘service-maximizers’). So universities don’t spend too much money on fundraising activities: they stop once marginal expenses equal marginal income.

The above situation described the situation in the US. For European universities, the part of voluntary support in the budget is negligible. Mora and Nugent (1998) explain this as following:

- European universities are public institutions.
- Some of them do not own their property implying that gifts would be channeled to the government.
- Absence of philanthropic spirit due to high taxes.
- Less differentiation between institutions.
- Less relationships between alumni/industry/society inn general and institutions.
- No organized collegiate sports.

- **Universities and other universities**

*Competition among universities*

*Competition for faculty*

As faculty can show their research skills to the world through their publications, the uncertainty about the ability of a prof is reduced, which explains the importance of the

external job market<sup>17</sup>. Not only allows this the faculty to increase their wages by actually moving but also because outside offers increase their internal bargaining power.

Ehrenberg et al (1991) find that the turn-over of faculty is about 10% each year, a number that remained fairly equal between '70 and '90 and doesn't differ that much over different types of institutions. They further observed that

- Full and associate professors, however, had stabler employment (0.92) than assistant profs (0.85).
- Higher average salaries increased the retention rates of associate and assistant profs but not of full profs.
- Higher quality institutions have higher turnover of tenured faculty but higher retention of assistant profs.
- Church-related institution changed their faculty less, as do private relative to public ones.

Remaining too long on the same campus might even decrease wages: a negative coefficient on the 'years of seniority'-variable in wage equations points this out (see Ransom(1993) but for contrary evidence, Hallock (1995))

In the US, there's also a market for presidents and other university administrators (in other words, the "managers" of the university: f.e. the president of New York Public Library became President of Brown University and then became president of Carnegie Corp. (WSJ, 15/01/1997), a former manager of high-tech firm became president of Marlboro College (WSJ, 24/11/1997) and a consultant became dean of the Wharton Business School (Economist, 13/04/1996). Siegfried's (1998) list of economists that have had administrative positions further shows several persons that held administrative positions at different universities. Cecil Mackay Jr. f.e. has been president of Michigan State University, Texas Tech university and the University of South Florida. Still, the average tenure of a university president is quite high: Mixon and McKenzie (1999) find that on average they remain 11.5 years president at the same university, with public

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<sup>17</sup> Note that job-ads focus on research-skills while neglecting teaching-performance.(see fairweather)

universities having a substantially higher average tenure (+ 5 years) than privates, which is claimed to be a consequence of the difference in managerial incentives.

Besse(1973) claims that this is one of the differences between universities and corporations: *“the corporation president has normally come up through the corporation of which he becomes chief executive, although he may have changed employers when younger. The university president is normally sought from the entire field of higher education. Acceptable candidates are sometimes found within the institution seeking a president, but this happens in a minority of cases.”*

The above evidence described the situation in the US. In Europe though, the situation is different. The rectors of European universities are (almost?) always in-house (ex)-professors. Similarly, the market for faculty is largely constrained by national borders. As a consequence, options outside academe become more important, which can be illustrated by the large number of faculty that combine the roles of scientist and politician (see Frey and Eichenberger,1993).

### *Competition for students*

Universities compete for students, or better, they compete for the good students. Indeed, almost none of them does admit everybody that applies. One way of enlarging its pool of (good) students appears to be increasing R&D expenditures: Siow (1997) shows that more students will come from out-of-state if R&D expenditures are higher. Another is the use of merit-aid: students with high SAT students get more financial aid of the university. (Hoxby, 1999).

Tuition has been proven to influence the choices of American students between different US universities (see Rothshild and White(1991)). Similarly, high tuition at US universities, drive more and more international students to other countries' universities (WSJ,17/02/1998) and even US students to Canada (WSJ, 26/11/1997).

Not surprisingly, colleges then do react on the actions of their competitors: Yale started to renovate its campus after Harvard had taken similar actions<sup>18</sup>. And Harvard decided to increase its scholarship awards after its major competitors had done the same<sup>19</sup>.

Hoxby (1998) shows that due to the decreased importance of proximity (as a consequence of decreases in the price of being mobile) in the 'where-to-enroll'-choice of students, universities became more quality-homogenous internally while quality heterogeneity increased between colleges, both evolutions that conform to the predictions of the 'industrial organization'- literature. At the same time, the "across universities"-variability of tuition and educational subsidies, increased.

### *Consequences of competition*

Is this competition a good thing? Meckling(19??) argues: *'the competition offered by private universities for students and faculty, however, has kept the quality of education and research in US public universities above the level of public universities elsewhere.'*

Yet, others note that competition, due to its special nature in the educational sector, might go to far. Whinston (1999) argues that competition among colleges is 'positional competition': " *'Excellence' and 'prestige' drive colleges but these goals can be judged only with respect to others...the players become trapped in a sort of upward spiral, an arms race, seeking relative position; in the case of education, it may, in the extreme involve expensive 'competitive amenities' that do not produce sufficient benefit to justify their cost directly, but are important to an individual school because others are offering these amenities.'*

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<sup>18</sup> "The rapid renovation of Harvard Yard in the early 1990s was the model for our residential renovations" says Pamela J. Delphenich, Yale's university planner.(WSJ,14/10/1998)

### *Collusion among universities*

Above we focused on competition between universities. At the same time, universities sometimes cooperate.

Examples in Europe are Flemish universities that offer joint third-cycle programs or the European universities that cooperate through the Erasmus/Socrates-programs to increase student mobility.

Similarly, 17 US universities are trying to form a consortium to handle prepaid tuition plans (WSJ,13/11/97). And Shafer and Reed (1996) describe several consortia of universities in which institutions work together on administrative and academic issues, ranging from joint programs to joint purchase of on-line journals or telephone services<sup>20</sup>.

Cooperation even might lead to collusion: in the US, the Department of Justice (DOJ) filed a case against a group of universities that organized meetings in order to synchronize financial aid to students that applied simultaneously to several of the groups' members. The universities claimed that they needed this practice to assure that based was need – rather than merit based. The DOJ, however, saw colluding colleges that tried in unfair ways to raise their revenues and decrease their aid (See Hoxby(1999), Salop and White(1991), Carlton et al (1995) and Masten(1995), Netz (1998)).

Similarly, in 1990, the UK government decided to let the universities tender for students but after the receiving of the bids, it appeared that the bids were almost uniform. One of the reasons for this failure is thought to be collusive behavior (Cave et al.,1992): “*At the same time, the Committee of Vice-Chancellors and Principals encouraged an information exchange. Universities were asked to indicate anonymously in advance the size and the level of their bids. Finally, attempts were made at the level of individual cost centers and subject groups to oppose competitive tendering. Many of these relied upon moral suasion, but in some cases the possibility of sanctions were invoked. For example a*

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<sup>19</sup> Dean Lewis said Harvard wasn't directly responding to sweetened financial-aid programs adopted in the last year or so by Princeton, Yale, and Stanford universities, and the Massachusetts Institute of Technology. But he added that their actions “put this matter higher on the agenda” at Harvard. (WSJ 17/09/1998)

<sup>20</sup> <http://www.nacubo.org/website/members/bomag/cihe796.html>

*professional organization responsible for accrediting degrees wrote to university departments indicating that any discounting of the guide price might provoke an examination of the quality of teaching provided, possibly leading to a withdrawal of accreditation.”*

- **Universities and the industry**

### ***The nonprofit among the profits part 1***

While there are a lot of schools that are run for profit (Apling (1993) found that there were about 6200 proprietary schools in the US in 1988), most of these are not ‘universities’ in the traditional sense. They offer training in some specialized profession: 80 % teach their students business, cosmetologic or technical occupations (Apling 1993). Others, though still quite a limited number, do compete directly with the universities by offering similar degrees (University of Phoenix, DeVry institutions etc.) though their customers are mainly non-traditional students<sup>21</sup>.

How can one explain this predominance of not-for-profits?

Cowen and Papenfuss (1997) offer 5 explanations:

- the nonprofit status allows them to receive all kinds of government support
- they get donations and donors are reluctant to give to for-profit organizations where the shareholders could appropriate it.
- shareholders wouldn’t be able to monitor the profs because of asymmetric information
- students have to trust profs as well (again asymmetric info) and the incentives to cheat are smaller if you can’t appropriate the resources.
- good students increase the reputation of the university but good students are not always rich so profit maximization becomes harder.

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<sup>21</sup> See also Whinston (1998)

Still, these explanations are far from convincing. West (1989) concludes a review of the theories generally used to explain the existence of non-profits as follows: *'it is apparent that comprehensive analysis requires at least some application of elementary axioms of the economics of politics (or public choice). One of these implies that, because of asymmetric costs of political participation, some suppliers do better for themselves out of lobbying and organization than do others... Legislation and policy on nonprofit organization seems to be one of many examples of this phenomenon'*.

The idea that the non-profit constraint increases trust because money can't be turned over to the shareholders is somewhat naïve. Though faculty and administrators can't channel the money openly to their own pockets, they can do this in more subtle way as illustrated by the practices of a UK College: *"unnecessary and lavish personal expenditure was also documented. The report found: expensive staff "away days" were not subject to proper controls, public funds were used to pay for "an unacceptable level of personal expenses such as bar bills"; large numbers of expensive foreign trips, with excessive expenses, were made by the principal and vice-principal "out of all proportion to the benefits the college claims to have derived from them"; the principal and deputy had spent nine days short of a whole year out of the college over the past five years; and the use of the credit cards was not properly controlled."* (Thesis,16/04/99)

### ***The nonprofit among the profits part 2***

#### *Cooperation*

Universities regularly cooperate with for profits. Next to the licensing of their names for branding non-educational products we treated above, many universities collaborate with for-profit companies for research purposes. Both parties have their own reasons for this: Hoechst, a German chemical firm, funded a molecular biology department at a hospital affiliated with Harvard, in return for which Hoechst received the first rights to any patentable discoveries made by the department (Yang, 1986). Another example: Yale University is considering a partnership with the Center for Surrogate Parenting & Egg

Donation Inc., a California company (WSJ 03/02/1999): *“Director and co-owner Karen Synesiou says that by extending its presence to Connecticut, the center could draw clients from Massachusetts, the infertility-treatment capital of the U.S.; from New York, which prohibits commercial surrogacy services; and from the entire Eastern U.S., Europe and South America. Being partners with Yale, of New Haven, Conn., she says, would give the center the ability to do research it can't afford to do itself, and the prestige of being affiliated with one of the world's leading universities...For Yale's part, David Olive, director of the medical school's Center for Reproductive Medicine, says that a contract as the exclusive East Coast referral center for the Center for Surrogate Parenting would help the university's center attract more patients and research money.”*

### *Competition*

Moreover, several universities are active in commercial markets, despite their nonprofit status. Not surprisingly firms consider this as unfair competition. Indeed, some universities do not pay taxes on their commercial activities! (f.e. Dutch universities (De Telegraaf(07/04/1998))). Or they sell voyages at cost price because their goal is seducing their alumni (see above-WSJ 09/03/1998- see Weisbrod (1997) for more general treatment of this problem)).

- **Universities and the governments.**

Public funds play an important role in the Higher Education industry: they are not only used to support the public universities but also provide grants for private universities. As in any domain of public spending, indications exist also in the higher education industry that public money crowds out private money. Goolsbee (1998) finds that increase in government R&D spending leads to increases in scientists' wages rather than in more scientists and does force firms to pay more for their own R&D.

At the institutional level, Ehrenberg finds that more external support for graduate students is partially offset by a reduction in institutionally supported graduates. Conolly (1997) in contrast reports that there are feedbacks in research expenditures on the institutional level: if an institution spends more money on research, it will be able to increase its research income from external sources which on their turn increase institutional funds.

A similar question can be posed with respect to federal aid for students. Are increases in state efforts skimmed off by the institutions? Fear for this exists: when the US congress recently decided to give extra tax credit for students, it warned universities not to use this to give lower aid to students: “But Congress has indicated that its intent was that colleges not reduce “need”—and therefore aid awards—for those receiving this tax credit, a point Secretary of Education Richard Riley has reiterated in a recent letter to college presidents.(WSJ 22/12/98). And McPherson and Shapiro (1991-1993) confirm these fear: increases in federal student aid appear to lead to an increase of tuition at public universities (but not at private ones). But they also find evidence that more federal research grants lead to more instructional expenditures, more institutional support and lower tuition.

Another element of controversy are the indirect cost rates. These rates reflect how much extra money for indirect costs the federal government has to pay when giving a university a research-grant. At the beginning of the nineties, Harvard’s’ indirect cost recovery rate policy came under heavy fire because it was found out that Harvard had made the government paid too much by f.e. including the depreciation on a yacht as indirect costs. This case aroused a lot of media-attention (see Footlick (1997)) and since then studies have been published that try to explain why different universities have different indirect cost rates. McPherson and Shapiro(1996) found that private universities have about 2% higher rates. Other influences were the relative number of graduate students, the expenditures on maintenance and operations of plants, the ratio administrative on total expenditures and the region in which the university is situated. Massy and Olson (1994) tried to recalculate indirect costs of 7 universities, taking into account certain factors such

as differences in university-policies, factor prices and other but their corrections even increased the amount of variation between universities. Could competition between universities keep universities from asking excessive rates? Sundberg (1994) find that higher indirect cost rates do reduce chances on getting grants, but Ehrenberg and Mykula (1999) find that this is only valid for those universities that aren't large recipients. For the large recipients of federal research funds, rate-increases lead to more direct and indirect research money!

Concerning Europe: Flemish universities collectively determined the overhead rate at 15%. For the UK, Williams (1992) notes that UK universities take this problem more and more serious and shows that between 1984-85 and 1988-1989, several universities increased their overhead recovery rates. As in the US, the variability over universities is striking.

A more specific problem is the influence that states have on public universities. Goudriaan and de Groot (1993) find that regulation of expenditures on faculty compensation increases the costs of public universities while regulation on non-faculty compensation and non-state revenues decreases costs. The net impact, however is negligible. Similarly, Volkwein (1986) and Volkwein and Malik(1997) find no influence of differences in campus-autonomy on public campus-quality.

Toma's(1990) results in contrast, indicate that the smaller the number of universities a state board oversees (i.e. more decentralized monitoring), the more the public universities look like private ones: they rely less on tuition, have lower pupil/teacher ratios and have less tenured staff<sup>22</sup>. Her results are supported by the findings of Huffman and Just (1994) that a more decentralized administrative structure leads to more productive agricultural research<sup>23</sup>.

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<sup>22</sup> A more concrete example of the influence of a board of regents: in Florida, it is this board that is pushing to end the granting of tenure (WSJ,04/02/1998). For an early but thorough critique on the 'business-mind' of trustees, see Veblen (1918).

<sup>23</sup> They further find evidence that formula funding is more productive than competitive grants, that top-down management is valuable for applied research but prohibitive for basic research and finally that integration of the different research stages increases productivity.

The fact that governments are aware that they have to monitor the scientists they support is further proven by the fact that the European Communities' R&D projects are more decentralized when the (expected) results are more easy to communicate (Feldmann and Lichtenberg, 1997).

Finally, universities are not passive when laws are made: they do their part of lobbying too (WSJ,15/09/97) and: *"That isn't the only financial lure Eckerd is dangling before prospective students: This fall, it began offering automatic \$5,000 annual scholarships to Florida students who meet admission standards and started lobbying the state Legislature to increase the \$1,700-a-year scholarships it awards qualified residents to attend private Florida colleges"*(WSJ,23/10/96). Another example is the abolition of the ceiling on tax-exempt borrowing (see WSJ 15/08/97<sup>24</sup>). Since 1986, universities could only borrow \$150 million as non-profits. Higher amounts had to be borrowed at the higher for-profit interest rate. Many universities complained about this, claiming that this increased their costs and hence, their tuition. Recently, they succeeded in convincing the US Congress of this idea. However, Hansmann (1990) notes that many colleges could finance such capital projects by using some part of their own endowment. However, if the return on their endowment is bigger than the cost of the cheap loans they can get as nonprofits, they win money by financing their building projects on borrowed money!

Such an influence of universities on the law-making process is noticeable in many European countries too. The channels of influence are even more direct: several professors combine their role of scientist with the role of MP and some even become Minister of Education (f.e. recently Ritzen in Holland and earlier on, Janne in Belgium).

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<sup>24</sup> See appendix for the whole story.

### **Part 3: Some further firm-like practices of universities**

- **universities as investors**

Several American universities manage large endowment funds. Thirty-one of them are even dollar billionaires (WSJ 04/03/1999). Of course, they do invest this money in stocks, a profitable (in 5 years, Harvard gained 6.3 billion \$), but also risky business (in 1998, it lost 1.3 billion \$ (WSJ 13/10/1998). Acting like banks, some universities like Harvard and Princeton even manage their endowment-money in-house! (WSJ 10/02/1999-13/10/98). Moreover, some do provide venture capital. Newer, however is that some universities, instead of taking participation in venture funds, start providing venture capital on its own (f.e. Vanderbilt WSJ 11/11/1998)<sup>25</sup>. Still many universities are afraid of doing this because there would be a tendency towards supporting professors of the own institution. A danger illustrated by Boston University that repeatedly financed a profs' company but finally, the participation dropped in value to 10% of the initial investment. Some go even further and provide capital to their students (WSJ 25/11/1997- Columbia and University of Michigan have created funds of 1 million \$ for this purpose).

Also Belgian universities go this way: Baekeland (Rug), Gemma Frisius (Kul) and Magelaen (LUC) are venture capital funds that are created by universities to facilitate the development of university research into 'real-life' firms<sup>26</sup>.

While providing capital in order to improve the relevance of university research can, with a little bit of good-will, be accepted as one of the tasks of the university, it is much less clear why universities should build up such huge endowments. Hansmann(1990) argues that the 'intergenerational equity'-argument is unpersuasive. More compelling reasons are its use as financial buffer and the protection it provides for the reputational capital or

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<sup>25</sup> See Argyres and Liebeskind (1998) for some examples of earlier attempts of universities to provide venture capital.

<sup>26</sup> See Trends (01/10/98). One of the people involved notes: "we aren't sectarian, inventions by other universities are also welcome."

for the academic freedom. But *'prevailing endowment spending rules seem inconsistent with most of these objectives'*.

Different functions of the university do sometimes clash: at Princeton, the universities' endowment management company invested in the firm of a big donor (both transactions at about the same time) but later made a paper loss of about 78 million \$ on this investment (WSJ,9/03/1999).

- **universities and their names**

Umbrella branding is something that universities apply already since their foundation: they cover all their educational activities under the name of the University instead of using different brand names for the component-disciplines. This is a practice that is also widely used in the business-world (see Margolis (1989) or Sappington and Wernerfelt(1985)). From a more recent date is the big-scale branding of non-educational products. In 1998, universities earned 2.5 billion \$ in licensing fees and some even quarrel about the patent on names: Ohio University and Ohio State University f.e. battled about who could use the word 'Ohio' (WSJ,19/12/97). Especially, universities with strong sportsteams are represented in this market. But there are disadvantages: a lot of fake material is on the market (WSJ 24/10/97)) and the university has to look out for its image: firms who produce the items could be accused of unethical practices (like what happened at Duke University see WSJ 30/11/1998). In addition, products like alcohol, cigarettes or firearms are off-limits (WSJ,29/12/97)<sup>27</sup>.

This image-sensitivity is noticeable in other university practices. Afraid of bad publicity, US-universities cover up 'on-campus'-crimes: 'while universities are loath to scare off

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<sup>27</sup> "But more recently, Harvard and other institutions known better for their academics than their athletics have been trying to snag a bigger piece of the \$2.5 billion-a-year collegiate-licensing market. And like the American movie stars who hawk beer, cars and other products on Japanese TV but shrink from such endorsements here, these hallowed institutions find they can rake in cash from overseas licensing without coming across as crassly commercial at home... Most universities won't lend their names to alcohol,

prospective parents, they allegedly fail to report 75 per cent of crimes.”(THESIS-??/19??)

At the other side, they even cheat to improve their image: as average SAT-scores are seen as an indicator of quality, one university inflated this average while others dropped remedial and foreign students from the calculation of the average! (WSJ 05/04/1995-WSJ 30/09/96- Time 17/04/1995).

Reputation is also important when a university tries to enter into new businesses because it can ‘halo’ some of its reputation on its new department which will give the latter the necessary respectability. Goldin and Katz (1998) view this brand-name advantage as one of the reasons of the increase in scope of US-universities and of the demise of independent professional institutes between 1890 and 1940: *‘Certain universities had, as well, the capacity to bestow reputation on new divisions in untried areas, such as business schools, and in areas plagued by claims of quackery, as were medical schools in the wake of the 1910 Flexner report.’*

And such an effect even plays today: Yale University is considering a partnership with the Center for Surrogate Parenting & Egg Donation Inc., a California company (WSJ 03/02/1999). The director states that one of the reasons for the firm to get in this relationship is that *“Being partners with Yale...would give...the prestige of being affiliated with one of the world's leading universities”*.

Or in the UK, where a college merged with a university because otherwise it would have been left with “an unmarketable name” (thesis 16/04/99).

Reputation for scholarly quality is sometimes seen as being the ‘goal’ of universities. Still, there seem to be exceptions. Many universities admit athletes even if those fail to pass the general admission criteria. As Brown(1996) shows this can be due to the fact that these students increase the monetary (!) revenues of the university (admitting an extra athlete through lowering admission standards would raise revenues by \$ 296.000). So it seems that scholarly and athletic reputation are substitutes.

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tobacco or firearms. Cornell University politely declined a request to license a line of Big Red Rubber condoms several years ago”.

## Conclusions

We hope that the above has made clear that scientists are just like any other human being and that universities act just like any other firm. Of course, these scientists and ‘scientific firms’ have their own ‘particularities’ but their behavior makes clear that they too are primarily interested in their own welfare...

The congruence with the business world seems to be especially clear for the US-universities. But even in Europe, universities are more and more managed like firms. To end with the words of the Vice-Rector of the university of Gent: *“Anyone who says that the university isn’t managed like a firm, doesn’t know what he’s talking about.”* (Knack, 15/10/98).

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