The Quants’ Impact on Management Education - and What We Might Do About It: A History-Framed Essay Rethinking the MBA Program

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“I often say that when you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely in your thoughts advanced to the state of Science, whatever the matter may be.”
Baron William Thomson Kelvin (1824-1907) - From 'Electrical Units of Measurement', a lecture delivered at the Institution of Civil Engineers, London (3 May 1883).

“The saying often quoted from Lord Kelvin (though the substance, I believe, is much older) that "where you cannot measure your knowledge is meagre and unsatisfactory," as applied in mental and social science, is misleading and pernicious. This is another way of saying that these sciences are not sciences in the sense of physical science, and cannot attempt to be such, without forfeiting their proper nature and function. Insistence on a concretely quantitative economics means the use of statistics of physical magnitudes, whose economic meaning and significance is uncertain and dubious. (Even ‘wheat’ is approximately...
homogeneous only if measured in economic terms.) And a similar statement would apply even more to other social sciences. In this field, the Kelvin dictum very largely means in practice, "if you cannot measure, measure anyhow!" That is, one either performs some other operation and calls it measurement or measures something else instead of what is ostensibly under discussion, and usually not a social phenomena. To call averaging estimates, or guesses, measurement seems to be merely embezzling a word for its prestige value. And it might be pointed out also that in the field of human interests and relationships much of our most important knowledge is inherently non-quantitative, and could not conceivably be put in quantitative form without being destroyed. Perhaps we do not "know" that our friends really are our friends; in any case an attempt to measure their friendship would hardly make the knowledge either more certain or more 'satisfactory’’! Knight F. H. 1940. What is Truth in Economics? *Journal of Political Economy* **48**(1):18n

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Introduction

Our conference is about the transformation of higher education in general and business schools in particular. I have not administered a university so I do not really know what is involved in making them better; although there is plenty of advice around, and probably all sorely needed (Bok, 2003; Lewis, 2007; O'Brien, 1998; Owton, 2011; Rhoades & Sporn, 2002; Zemsky, Wegner, & Massy, 2005). But I have been an entrepreneur, banker, and Dean of a business school and sense some of what business schools are up to and might or might not do in the future. I see this topic as intellectually appealing and probably important - certainly to our students if no one else. Not everyone agrees, of course, so I accept that some will find my essay neither improving nor interesting. Notwithstanding, I hope it might intrigue a few towards new thoughts. I also hope my longish bibliography will help some researchers, especially those in business schools, touch fields of research lying beyond our discipline’s central journals.

Some have queried whether business schools (BSchools) belong in universities at all, given their long history outside them and that most business education takes place elsewhere. Widespread criticism of BSchools' doings has raised questions though without, it seems, generating much clarity on how they might be dealt with. Some think we are at an impasse and do not know where to go or what has been achieved - that we have lost our way (Bennis & O'Toole, 2005; Mintzberg, 2004; Stewart, 2009) or that what we achieved was too late (Rehder, 1982). Others suggest we have achieved much and are simply being challenged to do better (Behrman & Levin, 1984; Bisoux, 2007; Cheit, 1985; DeAngelo, DeAngelo, & Zimmerman, 2005; Durand & Dameron, 2008; Hay & Hodgkinson, 2008; JMS Editors, 2004; Khurana & Penrice, 2011; Kuchinke, 2007; Lorange, 2005, 2008; McCormack, 1989; Morsing & Sauquet, 2011; Pfeffer, 2007; Pfeffer & Fong, 2002); Zimmerman wondered about BSchools' survival (Zimmerman, 2001). In contrast, other authors (Cornuel, 2005; Ewing, 1990), and especially the AACSB establishment (Fernandes, 2004, 2005), see our industry through remarkably rosy spectacles - onwards and upwards. But the debate is more often a clash of opinions than evidence-based.
In contrast to the fact-lite hubbub characterizing the conversation since the 1970s, a group of energetic management education historians has opened up new ways of analyzing what we do (Aaronson, 1992; Augier & March, 2011; Cooper, 2011; Daniel, 1998; Engwall, 2004, 2007; Engwall & Danell, 2011; Engwall & Zamagni, 1998; Hanlon, 1996; Hugstad, 1983; Khurana, 2007; R. R. Locke, 1984, 1989, 1996, 1998, 2004; R. R. Locke & Schone, 2004; O'Connor, 2011; Thomas & Wilson, 2011; Wensley, 2011; Witzel, 2011). Historians have lots of freedom, especially in picking their research questions. Thus some simply assume BSchools exist and tell the story of their multiplication or shifting status in the university. Others that BSchools exist but are not doing what they could or should.

Others see them as unproblematic entities, ‘professional schools’ whose nature seems pretty obvious, with problems that can be analyzed reflexively through the theories taught in the schools - 'physician heal thyself'. Some see BSchools responding ‘isomorphically’ to their environment (D. Wilson & McKiernan, 2011). Others see them as professional service entities, originating in Europe, reconstituted dynamically by ‘social leadership processes’ (Fragueiro & Thomas, 2011). Others, focusing narrowly on the MBA degree, see them as little more than its constructors and deliverers (Datar, Garvin, & Cullen, 2010; Friga, Bettis, & Sullivan, 2003).

Those in the institutionalist tradition of Douglass North do not take the BSchools’ existence for granted and ask (a) why they exist and (b) what characteristics might differentiate them from other social institutions. Whitley, for example, suggested they exist as a means for the elite in our democratic capitalist society to maintain its grip in the face of social and technological changes (Whitley, Thomas, & Marceau, 1981). Khurana, in contrast, argued business schools came into existence to meet a national anxiety at the end of the 19th century about the selection, education and evaluation of private-sector managers as their power and impact was growing rapidly (Khurana, 2007). They would be the instruments of a national ‘professionalization project’ to transform management into a profession - like medicine, engineering or law, with their policed modes of professional selection, education, credentialing, appointment, practice assessment, and so on. The project developed a substantial literature between 1900 and 1935 (Drucker,
2005; Henderson, 1927; Jarausch, 1982; Light, 1983; Lowell, 1923; Metcalf, 1926, 1927). But we know there are difficulties with this, given entry into management remains in management's hands and un-policing by professional bodies like the AMA, ASME or ABA. Nor, as yet, is there a demarcated and policed body of knowledge on which a profession might be put in place. Nor is there much evidence from the last century of management research that this is going to appear anytime soon.

A rather different analysis opens up when attention shifts from BSchools as social or institutional entities and onto the components of their curricula. This leads to different research questions, of course, less why do BSchools exist than why this or that material is in the curriculum, what it might equip students to do, how it fits with the curriculum's other materials, and is the pedagogical objective to teach theory or skilled practice, or should it be studied individually or in groups? In this essay I look at the present challenges to BSchools through the lens of the quantitative methods that are now the major component in the curriculum. These methods have sometimes been highlighted to indicate where we have gone wrong. The criticism that quantitative methods loom too large in the curriculum goes back many decades and has been much repeated recently, yet was crisply put by Harvard President Bok in his 1977 commentary on the state of the Harvard Business School (Bok, 1978; Keller & Keller, 2001:442). The criticism has recently morphed into the charge that teaching business students mathematics, statistics, quantitative methods and, especially, neoclassical micro economics (or mathematical economics) de-socializes them and turns them into greedy destructive egoists when they get their hands on financial or organizational power (Ferraro, Pfeffer, & Sutton, 2005; Ghoshal, 2005; Ghoshal & Moran, 1996; Iida & Oda, 2011; Pfeffer, 2005). In lieu of cod-liver oil, they need a strong dose of business ethics.

I do not think this a useful way to think about the challenges management education faces, in part because it pays insufficient attention to our increasingly quantified society. But our analysis is always prisoner to our assumptions, and if we take BSchools for granted, as many do, I think we lose hold of the debate
immediately. The question of why BSchools exist is pivotal, for the answer, explicit or not, sets the grounds for every author’s analysis and its possible conclusions. Ignoring the question leaves the analysis poorly structured at best. Thus the first part of my essay reviews our situation and explores why BSchools exist and how they might be critiqued. For instance, are they doing something they should not be doing, or not doing something they should be doing - like teaching business ethics or ‘green’ management? After rejecting the suggestion that the BSchools had much to do with the present financial turmoil I conclude our core difficulty is that we have no viable theory of the managed private sector firm, and without it little way of knowing whether what we are doing is right or wrong. This lack clearly stands in the way of our playing a part in professionalizing management; even assuming this is our, or their, objective - which I doubt.

In the second section I narrow the discussion onto quantitative methods and examine the long-term societal trend to their greater use and our rising trust in numbers as part of the cultural shift towards ‘modernism’ and the belief the important things in life can be theorized and brought under our control by using quantitative methods, including those of science (Pettigrew, 2001). This section relies heavily on Theodore Porter’s historical analysis (T. M. Porter, 1995). In the third section of the essay I look at how quantitative methods came to dominate the BSchool curriculum as they do today. Their introduction was not the result of an innovative curriculum move by some far-seeing transformational academic. Rather it was a widespread response to the changing markets into which the BSchools intended their graduates to move - a convoluted way of saying ‘because business wanted it’. This leads to my general thesis that the BSchool curriculum was developed less by educational innovations from within than as relatively opportunistic responses to the demands without. There is nothing novel about this argument, of course, but it reframes the history of management education as one of educators passively following the history of management - especially as viewed through their sometimes questionable notions of management practice (D. Wilson & McKiernan, 2011). The principal weakness with this strategy arose because the schools lacked (as we still lack today) a definitive practical managerial theory of the private sector firm. As a result administrators and faculty had no way of
analyzing or justifying how any proposed new component of the curriculum related to managerial practice and thus to a curriculum intended to equip students for that practice. Equally important, they were not able to evaluate the market opportunities that were arising and how firms’ self-directed needs might be balanced against or meshed with either the student's educational needs or the broader social needs being addressed by the university.

Somewhat following along with Khurana's argument as he outlined three phases of US business school evolution, I suggest the BSchools' sense of why they were teaching quantitative methods was market-driven and has gone through five historical phases. The first was suggested by Khurana’s notion of an earlier time, when the curriculum objective was to train individuals into managing as a 'social duty'. The second phase extending from around 1900 to WW2, to supply the metrics and accounting-based skills necessary to implement the measurement and control systems introduced by the pioneers of Scientific Management led to the period of 'managerial capitalism' (Smiddy & Naum, 1954). A third ‘conglomerate and M&A’ phase, especially in the 1960s, saw BSchools providing the new tools for cash-flow management, corporate financial analysis, corporate governance and corporate valuation that enabled firms to increase in size and complexity in the years after WW2. Fourth, in the 1970s, as the business emphasis switched from enlarging and sustaining complex corporations to maximizing the returns to free-floating investors, schools provided the analytic tools for 'investor capitalism', institutionally demarcated by managers' willingness to asset-strip, break firms up and sell their parts, or liquidate them entirely so long as it made 'financial sense' to the stockholders.

But the core of my thesis is about a fifth phase, arising in the 1980s, when BSchools moved to support the financial services industry's switch into what Keynes labeled 'casino capitalism' (Keynes, 2009:132). I suggest Khurana's notions of managing (1) as social duty, (2) in pursuit of firm efficiency, and (3) as a service to institutional shareholders can be usefully elaborated by separating his investor capitalist phase into (a) a conglomerate and M&A phase, and (b) a shareholder capitalist phase, and then extending the historical sequence to a fifth
phase of ‘casino capitalism’ (Hanlon, 1996; McKenzie, 2011; Strange, 1997). The explosive growth of this last phase persuaded market-following BSchools to provide for that niche, perhaps at the expense of their traditional markets. The new tools necessary included the high-level mathematical skills necessary to model ‘risk’ and price options, derivatives, and a host of new ‘financial products’ (Avellaneda, 1999; Benninga, 2008). The rapid expansion of this activity precipitated the era of 'rocket scientist' quants (Ayres, 2007; Patterson, 2010). They helped usher in a new universe of mathematically-based trading that further encouraged the development of next generation financial products such as options, derivatives, swaps, collateralized debt obligations (CDOs), contracts for difference (CFDs), and ‘algotrades’, among others, and the creation and rapid expansion of shadow markets in which these products could be traded. Their rise has been widely blamed for the financial collapse (Partnoy, 2004; Sorkin, 2009; Zeckhauser, 2010).

While Khurana’s narrative framed his three phases as somewhat 'paradigmatic' (Figure 1) each displaced in a Kuhnian paradigm shift, I see the five phases above as more accumulative (Figure 2) although interpenetrated and mutually reinforcing as each phase persisted to some degree even when it seemed overtaken in business and career attractiveness by a later phase. However, the later phases I particular encroached into the world of finance and, impelled by that, led to a quantitative 'colonizing' of the BSchool curriculum (Fine & Green, 2000). Those specialized in researching and teaching these methods began to dominate the schools' internal politics and resource allocation struggles. There was a steady transition in ideology and ethos as the in-school trends were both driven and materially empowered and reinforced by the national political and ideological shifts that led to the rise of rational choice liberalism (Amadae, 2003; Duménil & Lévy, 2011; R. R. Locke & Spender, 2011; Peck, 2010).
Since the job opportunities created during the fifth period of casino capitalism are still there for quantitatively oriented BBAs and MBAs, not significantly diminished by any post-collapse regulations, such as the Dodd-Frank Wall Street Reform and Consumer Protection Act (2010), any prescription to have BSchools make less of quantitative methods is misconceived. The prescription mistakes the problem and shows we need a new diagnosis. My essay outlines a different interpretation of today's BSchool challenge, focused on developing a better understanding of how these powerful quantitative methods might be fitted into an education that is less reactive, less passively conceived and less abandoned to the financial sector's evolving needs, even as our students are inevitably attracted by the extraordinary returns from working in ‘trading’ and the new parts of the financial services industry. It is sheer hypocrisy for us to pretend to modesty and asceticism from the comfort of tenure, given the students’ increasingly turbulent world - atop the relentless rise in college fees, leading to stunning student debt and its extraordinary burdens, to say nothing of pervasive cheating (McCabe, Dukerich, & Dutton, 1994; Molho, 1997). At the root of this is our failure to develop a theory of the managed private sector firm that can be used as a touchstone for directing curriculum choices and research. With this in hand we would know how
quantitative methods fit into the curriculum, how they integrate with the other subjects we think should also be taught, and so on. In my concluding section I review some indications of what this theory might look like and the educational activity implied. I question the cost to our students of organizing the MBA curriculum along disciplinary lines, in spite of its convenience to faculty, and suggest a curriculum based on (a) the different kinds of firm suggested by a multi-phase historical analysis, and (b) the different methodologies that we always need to complement the quantitative methods now dominating our research and teaching.

As Khurana noted, there has been a recent ‘turn’ towards leadership and entrepreneurship studies, and the student body seems interested in these. Many Deans feel these can provide the basis for curriculum reform. But they have been around for a long time. Leadership was a major topic in Greek and Roman thought while theorizing entrepreneurship goes back to Cantillon at least (Cantillon, 2001). Plus there is as little evidence of viable teachable theory here as there is of a useful theory of the managed firm, so it is not clear whether this turn is forwards or backwards. Of course, the deeper answer to the question of ‘what is to be done about the quants’ is neither technical nor theoretical; it is a more fundamental professional one, whether our community is to take back the educational initiative, and the abandoned moral high-ground, or remain forever in fee to market forces. The irony being that over the last century management education has become a profession in every sense of the word, while management remains something else, perhaps a practice, perhaps an ideology (Spender, 2007b).
The Business Schools' Situation

The many critics of business schools, this author included, need to come to terms with management education's obvious successes - which is not to say we could not do better. But the critics are not merely urging better; they hope to strike deeper and show something is deeply wrong (Bennis & O'Toole, 2005; I. Berg, 2003; Crainer & Dearlove, 1999; Hayes & Abernathy, 1980; Mintzberg, 2004; Navarro, 2008; Starkey & Tiratsoo, 2007). At the same time we can appreciate BSchools are older than most realize and have been criticized for centuries, as have the US schools since their inception around the turn of the 20th century (Redlich, 1957; Spender, 2005, 2007b). The criticism does not seem to have impacted the schools' behavior or their growth and proliferation; so the boosters and the critics seem to be in parallel universes, neither paying much attention to the others' arguments. Focusing on something BSchools are actually doing, teaching quantitative methods, helps bridge these positions. Quantitative methods' dominance has also provided some critics with their target, but attempts to value quantitative methods against some real or imagined opportunity cost lead to little more than academic squabbling - such as the curious continuing discussion about whether teaching students economics makes them antisocial or narcissistic (Iida & Oda, 2011; Westerman, Bergman, Bergman, & Daly, forthcoming). Some of our best friends are economists! There are also accountants, reaching back centuries with their separate programs and accreditation, equally nourished by numbers (Brown et al., 2009; Previts & Merino, 1998).

Business studies are typically at four levels; undergraduate, masters, doctoral and executive. The critics' focus is primarily on the MBA programs, somewhat towards the BBA programs, but seldom towards the PhD and DBA. The executive programs are curiously under-criticized, perhaps on the grounds that the market's view is all the comment required - and, caveat emptor, academics cannot add anything to free-market forces. So even though exec programs are the major activity at many schools I exclude them from this essay. The business studies part of the BBA curriculum is often similar to the MBA curriculum, perhaps 'watered-
down’, perhaps identical. The doctoral level is primarily oriented towards training faculty for the BBA and MBA programs and deserves its own critics, so I shall not consider it either. Rather than evaluate the MBA syllabus course by course, I turn to recent research into the history of BSchools in the US and elsewhere. Our discipline’s history is little appreciated even though it provides important insights into what we do and why. When it comes to quantitative methods, it is useful to see how we got to teach them in the first place and what was expected. Accepting the fact that we teach them, we can explore the criticism that BSchools have lost some desired balance. If this is to be more than academic snobbery, the critic's obligation is to spell out and justify a better balance, and this is not so easy. We might extend the undergraduate principle of balancing a major’s quantitative orientation, such as chemistry or engineering, with a substantial dose of liberal arts in order to produce a more 'rounded' individual. This principle is ancient and recalls Newman or Pelikan (Pelikan, 1992), applies to all the sciences, is not peculiar to business studies, and may have little relevance to post-graduate work anyway, raising questions about what is to be expected of an MBA degree. Alternatively we might argue that a better balance of study and co-op/lab/simulation/practice would be better preparation for the workplace (Berggren & Söderlund, 2011; Revans, 1971; Schön, 1983, 1987); though this idea is hostage to the claim that the MBA is meaningful preparation for managerial work, something neither demonstrated by graduates’ performance nor reflected in the empirical data on how they value their experience.

The historical analysis confirms what we all know, that over the last century BSchools (a) have followed a rapidly expanding market for the kind of management education we actually deliver, and (b) have become firmly institutionalized into the processes of private sector management selection and employment. The BSchool's various rankings, commercial and institutional, such as the UK's RAE, bear directly on its place in these processes, so we see many schools have worked hard to perfect their curriculum, and to burnish their reputations and attract private funding to supplement their fee income so as to apply that towards improving their ranking. It may be that no other goals matter, the market speaks and growth, market penetration and rankings are all that count.
The very different proposition that management is or should be a profession in the way medicine, architecture and engineering are stands against this. Khurana's 'higher aims' provided a strong narrative line for his history of the American schools, but it may not clarify any specific BSchools' origins, situation or activities, or help us see what to do 'going forward'. As 'professional schools', as they are often called, BSchools have closer parallels with law schools than with medical, architecture or engineering schools, for those stand on solid 'knowledge foundations', even scientific. Yet in comparison with law schools significant differences remain. All professional schools present their host universities with challenges, especially when they are growing fast and they are still viewed as academically questionable by other faculty. But it seems off the mark to criticize the BSchools for the problems they create within the university when those same universities were party to those schools' creation.

If business education is to be 'improved' beyond the brute fact of more successfully meeting the market's needs, measured by the number of BBA and MBA applicants, student retention rates and satisfaction, and the school's rankings, the critics must focus on something the schools should be doing but are not - or are doing, and in spite of good market acceptance, should not be. To pillory the BSchools for teaching economics is absurd and illogical if we are not also going to complain about the provision of economics degrees elsewhere. To pillory BSchools for teaching quantitative methods makes no sense. Likewise, teaching theory as opposed to 'best practice' remains a major problem for all professional schools as they struggle with the tension between analysis and skilled practice. There is nothing peculiar to BSchools here and anyway, in this litigious age, BSchools would be unwise even to claim they prepare students for managerial practice. The tension between theory and practice goes back to the roots of Western philosophy and the well-appreciated gulf between generalities - the language of analysis and theory - and particulars - the language of experience and practice. Which leads on to a debate about the grounds on which BSchools dare claim any relevance to managerial practice as they presume engineering schools, for instance, claim relevance to professional engineering practice. In fact engineering schools have their own difficulties, little understood or discussed in
BSchools (Sheppard, Macatangay, Colby, & Sullivan, 2008). The perennial rigor-relevance debate may be more about stroking faculty egos and intellectual biases than about what the schools might do to meet the students' or their employers' needs better (Contardo & Wensley, 2004; Knights, 2008).

If we look at what B Schools are doing but should not, there are two kinds of caveat. First, in the heat of their invective critics are tempted to over-emphasize the schools' impact on their students; but maybe it does not matter much what B Schools do - and perhaps the faculty and their research do not matter that much either (Hambrick, 1994). There are few good measures of what MBA programs do for our students (Fisher & Kiang, 2007; Holtom & Inderrieden, 2007; Hsu, James, & Chao, 2009; Montgomery & Ramus, 2011). But when we look at what students have to say about the MBA experience few complain it was like being sent to a religious or military school and force-fed grossly inappropriate dogma (P. Cohen, 1974; Kelly & Kelley, 1986; McCormack, 1989). Most report it as a mildly to greatly improving experience, some for purely instrumental reasons, it got them a good job, some for more personal and complex reasons (Lundstrom, 2011). For most it led to personal growth as well as expanded opportunities and membership of a new community. It is not obvious that B Schools are worse in their bad effects on students than other schools, whether the negative impact arises from persuading the students' into unrealistic work expectations or de-socializing them. MBA students are probably as able as any to handle a school's or a faculty member's bad influences, and B Schools cannot be blamed for being on the institutionalized pathway from high school to a high-paying job at Goldman Sachs, Google or McKinsey. A B School background may also serve to attract the attention of venture capitalists in the event students want to start up on their own. Contemporary capitalism and its institutions have their idiosyncratic functions and dysfunctions quite independent of the B Schools'. A more persuasive argument is that B Schools are failing in not doing something they should be doing for those who select to attend them, given that most managers do not. For instance, many call for more attention to business ethics; but it would be illogical not to expand that to non-B School students as well (Macfarlane, 1998). Perhaps the critics presume managers have special ethical burdens other citizens do not have - in
which case these need to be spelled out, something that requires a workable theory of managing as distinct from simply living and interacting with others.

Most attending our conference will have views about where the argument might go next. Even though it is easier to point to the presence of something unacceptable or objectionable in the curriculum or process, in the end the critic has to fasten on some evident failing and then inveigh against it. Clearly BSchools should not teach a position that stands against the law on racial or gender discrimination, or against pollution, currency or immigration controls. They should not be blind to inhumane industrial practice offshore or onshore, but they are training private sector managers, not public sector managers or regulators. On the other hand businesses often operate in a grey area, not strictly prohibited but not manifesting our ‘better angels’ either. There may be a tug of decency against profit. Eventually those determining the curriculum arrive at the distinction between managing as a value-free logical or mechanical activity, versus seeing it as a value-penetrated social process that engages real people, with values and futures. While values are personal, our teaching demands values be embedded in the school's philosophy, ethos and praxis. An important lack, therefore, might be of an identifiable value-position that stands clearly against merely mechanical or ‘numbers rule’ models of managing. Some favor free-market approaches, others are attentive to social responsibilities, but in every course students deserve a value position - whether to be accepted or rejected matters less than to be debated. To propose neutrality is hiding, an eviscerating attempt to deny the managerial reality in which nothing socially or personally significant can also be value-neutral. At the core of all education, and certainly that in business, is the students’ need to debate values and so help find their place in the lived world.

Business schools are probably not the best place to explore an anti-capitalist or postmodernist political program - but a critical approach can be effective in illuminating how democratic capitalism and its engines actually work, so we should not be too hasty on this (Alvesson & Willmott, 1992; Currie, Knights, & Starkey, 2010; French & Grey, 1996; Perriton, 2007). A school's value-position is also articulated in its educational philosophy, yet schools' mission statements seldom
deal with this, surely their most important aspect (Palmer & Short, 2008). These
often favor generality, universal goods, and value neutrality, and here schools can
fail to make their students aware of the ethical dimensions of life as well as of
managing as an activity involving directing others. Most Anglo-American schools
subscribe to some variant of the Deweyian philosophy of education (Kolb & Kolb,
2005), favoring a 'guide on the side' over a 'sage on the stage'. Dewey's theory of
education works by encouraging students to think for themselves rather than
slavishly follow the teaching, to think critically, to view arguments from as many
sides as possible and, in our field, to accept the fundamental heterogeneity and
diversity of our socio-economy. Aside from the complexities and challenges of
teaching this way, especially if the student has been trained into different
intellectual habits, there is the difficulty of maintaining the necessary openness
that energizes such teaching (Bloom, 1987). On the one hand there is the
faculty's necessary openness to and knowledge of alternative views, on the other
the difficulty of helping the students remain open-minded, especially as they
experience the satisfactions of grasping some new viewpoint - systems theory, for
instance, when everything gets called a system, a nail to be hammered with their
new systems theory 'hammer'. Even those of a Deweyian persuasion can fail to
be open-minded in their teaching practice. Thus there are clearly two solid
grounds for criticizing any school - (a) when it fails to promote the discussion of the
values, or (b) when it is closed-minded conceptually.

But these remarks apply to all professional schools and probably all education.
They are general and reflect nothing of what is peculiar to the BSchool's defining
topics, travails, methodologies and constituencies. If we want to evaluate
BSchools against their own intentions to serve aspiring or practicing managers or
the broader socio-economy we have to fasten on what is specific about them; and
if we do not accept Khurana's challenging proposition that they exist to inculcate
democratic capitalism's 'higher aims' - even assuming we could ever find and
agree on how to operationalize these (Ruef, 2008) - we have to find some other
defining characteristic that separates business from the rest of social life. The
education of business managers has to be defined in some way that differentiates
them from the general weal. Do the manager's values or decision-making differ
from those of other forms of life? Such questions do not seem to have been a problem for our community. One of the many curiosities of our discipline is the contrast between (a) the homogeneity of the BSchool curriculum around the globe - in spite of increasing institutional and national differentiation - and (b) the lack of any justification for or explanation of why we teach what we teach. In spite of much debate at the margin, whether we should teach business ethics or entrepreneurship or operations management or not-for-profit accounting, or whether the classroom or the case method is more effective, there is no clear central principle or justification for the BSchool curriculum. This lack has been part of the US debate since the early 20th century as business education moved from the vocational sector, where there was no curriculum justification beyond trial-and-error identification of market need, and into the university, where continuous curriculum debates are normal and broader principles pursued. While this lack of curriculum justification drew comment in the early days of American schools (Copeland, 1958; Donham, 1954; McNair & Hersum, 1954) it has pretty much vanished from our journals today (Khurana, 2007:154). It seems we are not assailed by doubts about the legitimacy or utility of the mainstream core curriculum and the debate on curriculum change is focused on its fringes.

The academic shorthand here is that we lack the theory of the managed private sector firm that could be the touchstone for justifying curriculum content - an obviously contested point I consider throughout my essay's other sections. Though there is a widely shared sense of what we should teach there is a similarly unarticulated sense of what we should not teach - cultural anthropology or theater or the design of mechanical processes or the psychology of bipolar disorders, even though there might well be arguments for including them, given business is complex, about human beings and their interaction, and could be informed by the entire corpus of human knowledge. But there is no great clarity on what really belongs in the curriculum. Rather, what we agree on seems to have spread by imitation, especially of the curriculum at the Harvard Business School. Without a central pillar of justification or distinction between business and the rest of life, well-meaning faculty are free to bring all manner of material into the curriculum; but how justified? For example, how do we justify integrating psych-lab research...
on students - non-employees - into theories of managing in the curiously a-social context of the real firm? The most damaging criticism is that BSchools have no theory of the firm that is their focus; and, by extension, no robust theory of what managing the firm is about. The familiar claim that managing is 'decision-making' would be fine if we knew what that really meant. Rational decision-making we understand, but we also see that it is not a good guide to the decision-making that characterizes managing. It may well be useful to teach students rational decision-making but it would certainly be a mistake to convince them it is a representative model of managing. In spite of Simon's work on 'bounded rationality' we lack a good sense of rational decision-making's limits and thus of the managerial relevance of the rational approach.

The most profound critique of BSchools must stand on this ground and our most urgent academic task must be to address this lack. But even without dealing with it, we seem able to justify teaching (a) economics (Jacoby, 1956), and (b) quantitative methods, especially if we treat them in the way statistics used to be treated - a universal method for extracting conclusions from a mass of noisy empirical data. All forms of managing would seem to require dealing with lots of data, so statistics is good. But if we also had a tenable theory of the managed firm it would help us find a proper balance of quantitative methods against, say, business ethics or cross-cultural managing or the dysfunctions of bureaucracy, and much else besides. Even if we had no more than a comprehensive set of managerial heuristics to frame 'best firm-level practice' we would be better off than we are. A century of research, US and elsewhere, has yet to establish the widely accepted body of business knowledge necessary to justify the BSchool curriculum, let alone develop a professional identity (McGuire, 1982). In this state of lack, every critic and teacher tends to start from her/his own intuition of the firm's essential nature; and the diversity here makes it unlikely that any critic will be able to mount a telling case against the momentum of the institutionalized curriculum content. The conventional - but unjustified - center will hold, forcing critics into division, to be duly conquered by the sheer momentum of the traditional syllabus.
In the face of our research program’s failure to identify a theory of the managed firm, the work of historians like Augier & March, Daniel, Engwall, Khurana, Locke, O’Connor and Witzel, shows the ways in which history offers different insights. It is a different methodology. Instead of testing hypotheses, it offers facts that might be summarized as a testable hypothesis. For instance, if we had settled the debate about whether small firms create jobs while big firms focus on profit then we would know whether we are looking for two different theories of the firm, one small and job-creating, the other large and profit-oriented (Neumark, Wall, & Zhang, 2011; Regatiero, 2010). But note the enquiry is driven by historical and empirical data, not by testing a deductively generated hypothesis. Likewise only if we had a theory of the firm would we know how and if corporate social responsibility should be part of that theory or merely epiphenomenal to an ideological critique of capitalism (Carroll & Shabana, 2010; Dahlsrud, 2008; Heald, 1988; Kemper & Martin, 2010; Windsor, 2006). But the inclusion of qualitative methods seem pretty obvious given accounting is both essential to managing and legally required, so why not count everything - the issue on which Lord Kelvin and Frank Knight seem to disagree?

The next section’s focus is on quantitative methods and how they became part of the BSchool curriculum. As Khurana and others have shown there is an important connection to the 1959 Foundation Reports and there are similarly important relations between post-WW2 political developments and the impact of institutions such as RAND and the Cowles Commission on the BSchool agenda and on the nation. Plus there is more to be said, for treating the reports as causes writes out how they came to be written and adopted by American schools, and thus the wider political and technological external pressures on BSchools to conform in content and method. Also our view of the reports may be far from what their preparers anticipated (Wensley, 2011). But the history does show the market for US and European management education changed greatly in the 1970s - as it changed also in the 1920s, 1950s and 1960s. In the 1970s there were major adjustments in the legal context of private sector firms as deregulation freed-up the financial markets in particular and led to a rapid expansion of financial services. This
industry, with its ancillary consulting activities, developed a huge appetite for MBAs with quantitative skills because of the specific markets they served.

Many argue the BSchools were ‘asleep at the switch’ during the recent crisis, and things can be made right by adding in some training in the non-quantitative and more moral-conscious disciplines - and this will prevent another crisis. This is curious, obviously hubristic, and illogical. The claim that BSchools were material causes of the financial collapse in 2008 is as absurd as the claim teaching economics causes students to become greedier. As Fligstein has shown, summarizing some of the huge and still expanding literature on the causes of the collapse, BSchools are scarcely mentioned (Fligstein, 2010, 2011; Munir, 2011; Rötheli, 2010; Zeckhauser, 2010). More to the point, since BSchools lack a theory of the managed firm they had no way of judging, evaluating or critiquing the morality of the world around them - yet into which they were projecting the students. So there is no logical argument for or against adding business ethics, CSR, sustainability, green management, etc. into the curriculum (Macfarlane, 1998; Spender, 2011b).

Thus the BSchools failed, and continue to fail, in the most fundamental way that distinguishes vocational training from a university's core activity. No question democratic capitalism needs well-trained and expert professionals such as accountants, analysts, statisticians, programmers, data divers and manipulators, operations researchers, model builders, and financial engineers, and universities may choose to offer training in these matters. But my charge is that BSchools 'lost their way' (Bennis & O'Toole, 2005), or perhaps never really found any way beyond blindly meeting local business demand, and were thus unable to provide students - as opposed to vocational trainees - with the intellectual and cultural vantage-point from which to critique these experts and the worlds they created. A historical question then is did the BSchools ever provide such a critical intellectual vantage point and, if they did, how did it get lost? The history of quantitative methods has much to say on this matter.
The Rise of the Quants

The urge to quantify matters economic and social goes back at least to Comte and the birth of European positivism, though there were significant precursors during the Arab Caliphates (Brown, et al., 2009; Chaudhuri, 1985; Nasr, 2009; Previts & Merino, 1998; Saliba, 2007). We, and our languages, are now so deeply penetrated by the idea of quantitative measurement that we can scarcely imagine life without it, yet its encroachment into our lives took many centuries, even after Comte. The growth and social impact of science and technology has much to do with this. Likewise the desire for control, which has a special resonance for managers, inspires quantification - whether it is land surveying for the tax authorities, ocean navigation, or measuring shipping cargoes and shoe production. Most of the modern measurement and quantification techniques were developed in the late 19th century (T. M. Porter, 1986, 1995). But the wider social urge to quantification became especially pronounced with the rise of commerce in the 17th and 18th centuries when the European agricultural economy flourished as people moved off farms where they grew their own produce and into industrial and government centers where they had to buy their food at markets. Standard metrics for beer, spirits, wheat, yarn, and so on proliferated, especially in France after the Revolution. The UK, Germany and France set up standards institutes and gradually their chosen yet different measures came to permeate every aspect of national life; though their spread was slower and more contested than we might think looking back from our own metricized and over-surveilled situation.

Non-scientists often assume science grows from the precise measurement of reality and this is not at all the case. The method of measurement is always an application of an observation theory together with some kind of measuring apparatus. Any part of this complex knowledge-generating process might fail, be incorrect or less than completely understood. The conclusions to be drawn from an experiment are never, as Popper is thought to have claimed, entirely definitive. Falsification cannot be either logical or final, and drawing a conclusion is invariably an exercise in judgment about the relative weights or attractiveness of the theory of observation, the theory being tested and the robustness and dependability of
the measuring apparatus being used. Every conclusion is a synthesis of these factors, indefinite, tentative and temporary, awaiting overthrow. Foucauldian analysts frame the imposition of standards as an exercise in social power to which measurement is a handmaiden. If so, science is more problematic since its power is typically less concentrated. Rather, standards and measurement are part of the 'codification' process that makes it possible for scientists to communicate efficiently with each other, so there is some collective interest in setting and adopting them. But ultimately quantification stands on mutual trust, a shared process of legitimating quantities and measures (Gooday, 2004; Latour & Woolgar, 1986). Researchers cannot repeat every experiment in order to test the validity of another scientist's findings. Thus all measures, even the most esoteric scientific measures, are deeply social.

Karl Pearson (1857-1936) was a significant contributor to our current attitudes to measures and quantification. He is credited with founding mathematical statistics, of course; but the concepts were framed by his thinking about experimental evidence. He argued our impressions are not directly determined by reality, they are simply our impressions. But neither are they arbitrary or crudely subjective. Science was the social activity of applying a method that would order our impressions and align them with those of other scientists. Becoming a scientist involved being trained into a community that developed and adopted a method of arranging impressions in a collectively accepted and legitimated way. Science is simply method and process, not findings. Science cannot give us insight into reality for we can only ever see or measure what we have previously imagined. At best the scientific method helps us accumulate trustworthy facts or evidence and then, in an act of imagination, we summarize these as a law. But, equally, we can never find 'perfect law-like-ness' or 'causality'. Instead we find association and correlation attended by variation, for nothing about reality is perfect, there is always noise.

In Pearson's view statistics was a universal method for teasing significant correlations out of empirical data. Quantification thereby separated thinking (theorizing) from experiencing, separated the universe of law-making from the
lived universe of experience and evidence; the general separated from the particular. We live one instant or experience at a time. Quantification creates an artificial reality in which those trained can share, which is therefore essentially social in nature. Time is an oft-cited example, evident as, perhaps, the Church’s need to establish a predictable calendar of events from weekly services to annual gatherings, or the nation's need to have taxes due or magistrate’s hearing dates. Many historians have explored the establishment or imposition of modern time, often illustrated as the need to coordinate railway movements, but more generally to run an industrial society in which production lines could only run when every station was manned or military operations likewise conducted (Landes, 1983). The result is tension between conventionalist agreements about how to manage time, daylight savings for instance, versus trust in some 'objective' non-social time set by NIST’s cesium clock that hides the social nature of our agreement about how many ticks or vibrations make for a year. We begin to see how time is problematized and contextualized, varying according to the analyst’s point of view.

The pursuit of social control through quantification collided with existing class arrangements. The elite asserted they knew the facts ‘immediately’ through their superior mental powers and sensory acuity. Boosters of quantification ran up against elitism and their influence spread only as the elites’ social and political powers declined in the 18th and 19th centuries, in part through the rise in commerce and management. Management, in turn, envisioned new forms of measurement to buttress their new powers. Note the term ‘statistics’ (state-istics) derives from computation in the service of the state, whence also the term ‘population’. Porter’s histories of quantification pointed out that it made possible socially significant entities that did not previously exist. Mortality rates - in a plague, say - meant nothing before data collection and statistical analysis, so the authorities had no sure way of gauging the seriousness of news. To illustrate just two ways in which quantification created new worlds, statistics (a) made an insurance industry possible, a matter of interest to the state, employers and employees, and (b) provided politicians and administrators with a new field of policy-making by distinguishing collective and individual activities. If the child mortality rate in one part of the city differed from that in another part, this might
indicate the need for sewers, better water supply, and so on; or for better parenting. Statistics would supply much of the debate’s rhetoric. To be managed the state had to exist as something more tangible than a name, so presenting the state as a set of statistics created the state as a manageable modern entity.

Likewise the debate about state-supported education depended on statistics about its cost and impact. War making, always a key driver, required the state to gather huge amounts of data about its citizens, their health and education as well as data about the economy, and so on. Statistics made it possible to form testable hypotheses to guide statewide social action in a ‘objective’ non-political way. They made bureaucratic administration possible. The possibility of managing the economy depended on gathering economic statistics. The same was true of managing individual firms, especially as they were moving to the production of large quantities of many different articles. For example, in the 1870s the Ames Shovel Works in North Easton MA, the world’s dominant supplier at the time, produced several hundred different types of shovel and spade, a situation that demanded dealing with huge quantities of data. Likewise Frederick Taylor’s Scientific Management movement was a hugely influential data-driven business development at the end of the 19th century (Spender & Kijne, 1996). Taylor identified two new kinds of production statistician as essential to his new ways of organizing production: time clerk and routing clerk, as well as measurers of production rates, product tolerances, scrap, work-in-progress, and inventory. Naturally, such production oriented quantitative experts were progressively more important as the economy expanded and operations became more complex. At the same time firms were growing larger, to the point where they could only be managed with the support of many different types of statistician - accountants, record keepers, clerks, estimators, financial analysts, market analysts, and so on. Private sector managers and owners discovered the limits of firm manageability, and this spurred academic economists to search for theoretical limits to the firm’s size and growth, and thus to search for metrics with which the firm might be characterized - assets, employment, sales, market penetration, and so on - a search that continues today with the attempt to measure the firm’s ‘intangibles’.
While the impacts of Scientific Management were economy-wide, the place of quantitative studies in the business curriculum was not immediately clear. Taylor famously argued business schools were a waste of the students’ time (Kanigel, 1997). Khurana’s second phase of managerial capitalism put the emphasis on organizational efficiency in the Taylorist tradition. The aesthetic was the engineers’ and quantitative methods inevitably played an increasingly important role in the education of managers being trained to view the firm as an efficiency-seeking bureaucratic or mechanical system. Scrap rates, time to complete product development, production downtime, and so on became the new quantitative language of management. The firm’s language was comprehensible only within the context of the firm as a social milieu, and perhaps within its industry, but seldom across industries. By 1930 the BSchool statistics faculty had established a separate disciplinary identity, especially in the AACSB schools, and along with economics, business finance, and public finance, made up the quantitative group that balanced the industry and organizational content specialists such as insurance, real estate and transportation (Khurana, 2007:167). But this does not tell us much about how quantitative skills were applied and how they related to the firms’ activities. The state use of statistics was obviously in the service of political discussions about state action, and numbers became the key modernist rhetorical device for persuading a more educated and numerate populace. They suggested objectivity and hid the social foundations on which all measurement stood in both the physical and the social sciences.

Numbers were clearly useful in the firm's discussions of strategic direction, but increasingly complex firms used numbers in other ways as well. Managerial accountants needed the costs and values of the intermediary stages of production and sales, creating ‘internal’ numbers that could not be verified against external referents such as market price. These made it possible to imagine internal markets into existence and debate the allocation of resources between divisions and projects using, for instance, internal rates of return (IRR) or anticipated growth rate. In the Taylorist Scientific Management tradition numbers were in the service of production control and resource allocation decisions. But firms also began to use numbers to ‘model’ their processes in the manner used by engineers, creating
artificial entities that allowed managers to evaluate making changes (Johnson & Kaplan, 1987; Kay, 1991). These methods also permeated the social sciences where notions of 'theory' and 'model' converged (Ando, Fisher, & Simon, 1963). This alternative way of using quantities had earlier precipitated the Methodenstreit between the historicist Schmoller and his followers and the deductivist Austrian School of Menger (Mäki, 1997; Senn, 2005; Vaughn, 1994). The historicists collected empirical data in support of administrative and political decisions that were ultimately matters of social and personal judgment, while the deductivists pursued theories expressed in the quantitative terms that would allow them to be tested 'objectively', as if the numbers were objective rather than social in essence. In this way those skilled in quantification battled rhetorically to establish a higher ground seemingly safe from subjectivism and mere opinion. This also meant suppressing the moral and ethical issues of social action beneath the screen of 'scientific objectivity'. The main point being that quantification can always be applied in two very different ways, one to better inform a value-penetrated debate between people choosing in their lived and morally burdened world, the other to create a model, an artificial and rigorous a-moral world that people might then try to inhabit.

The 1959 Foundation Reports had a huge impact on American BSchools at the same time as they were expanding rapidly in number, size and influence. But the reports themselves were only BSchool-focused manifestations of the general post-WW2 trend towards science and rigor as social and political metaphors for rationalist politics in the emerging new world. BSchools had long taught economics, perhaps on the grounds that business is about making money and economists talk about money (Jacoby, 1956). Progressively more attention was paid to why economics should be taught, Harris summarizing eight reasons, including the benefits of quantification and intellectual rigor and the ideology of monetary incentives (Harris, 1984). The work of a handful of the world's top economists, political scientists, mathematicians, operations researchers and computer scientists brought together at RAND in Santa Monica CA or the Cowles Commission in Chicago IL did a great deal to draw economic principles and quantitative styles of thought together to help fashion a new neoliberal politics that
had a major impact on the thinking articulated into the Foundation (Amadae, 2003; Amadae & de Mesquita, 1999; Peck, 2010). Crucial was Arrow's 'impossibility theorem' which helped 'prove' neither a voting system nor central planning could work fairly and efficient markets were the core of democracy (Bouleau, 2011; Feldman & Serrano, 2008; Geanakoplos, 2005; Sen, 1979).

The concept of management was gradually transformed from Taylorist efficiency engineering into rationalism pure and simple, a managerial doctrine. Modeling expanded alongside business fact gathering and statistical analysis. This opened the BSchools to a new generation of faculty without business or management experience, so long as they had quantitative modeling skills. Additionally, Khurana argued the pre-WW2 aspects of the 'human relations' discourse that balanced the Taylorist efficiency seeking began to be pushed aside by the emerging managerial rationalism (Khurana, 2007:203). The rhetoric of the rational profit-seeking firm, modeled by objective numbers, began to overwhelm any notions of social duty, competitive positioning, customer service, and so on. Managers became 'organization men' measured in terms of their service to the firm's quantifiable goals, less and less concerned with or able to deal with the non-quantifiable aspects of operating in a democratic capitalist system with its many complex tensions; less and less the firm's entrepreneurial agents and more and more mere passive cogs in a rational machine. Today's lawyers are measured in terms of their fee income, engineering professors in terms of their research grant income. The quants began to rise to dominance through their facility with this new rhetoric, pointing to the irresistible logic of the conclusions their numbers generated.

Against this we can note the historian’s device of asserting phases of management or organization, such as Khurana’s three phases, was previously used by Preston and Post who argued for a somewhat similar three phase analysis, but with the most recent a turn from ‘mechanical’ management to ‘participative’ management (Preston & Post, 1974, 1975). Historians can deploy a different narrative line to tell a different story and move towards very different hypotheses and theories. The combination shows the literatures of rational managing and human relations drifted apart, becoming more specialized as
communicating between the HR and rationalist disciplinary silos became more difficult. Today’s management researchers’ interest in ‘trust’, ‘stakeholder theory’ (Freeman, Harrison, Wicks, Parmar, & de Colle, 2010), workplace democracy, ‘servant leadership’, and variants of the Scanlon Plan and other forms of ‘worker participation’, show our continued interest in the non-quantitative discussion. That my five phases co-exist, the last beginning after the time of Preston & Post’s writings, allows the earlier social duty, efficiency-oriented, conglomerate, and shareholder capitalist phases to continue to evolve even as the later phases come into place. While there is significant continuing interest in modernizing management practices and paying greater attention to HRM, but it is focused on those managers who intend to keep their firms alive and operating. It is of less interest to those ‘managers’ who intend to put their firms ‘in play’, stripping their under-used assets and trading them. Thus against the theory of the firm implicit in Preston & Post’s work, modeled as human relationships, is the theory of the firm implicit in shareholder capitalism, modeled in financial language alone. The contrast creates problems for Deans because of the considerable tension between the faculty involved and in the BSchool’s curriculum, unresolved in the absence of finding or choosing the theory of the firm on which the school can be based.

From Conglomerates to Casino Capitalism

The quantitative experts’ ability to model as well as measure and analyze had major implications for managing the increasingly complex and diversified corporations of the post-WW2 era. The diverse artificial entities imagined into existence could nonetheless be modeled, managed and evaluated using uniform criteria, such as ROI, market share or cash flow. Rapidly growing conglomerate firms like ITT, created through Harold Geneen's success in purchasing over 350 different companies in 80 countries, were managed through a coherent system of uniformly structured reports based on corporation-approved metrics (N. Berg, 1965; Klein, 2001). Managers read these reports and took decisions on the basis of the figures shown, scarcely bothering about what the numbers represented or the particular products, people and communities affected. Everything was
reduced to its expression in the firm's uniform financial language. The managers' role was to use the standardized data to transform investment into revenue. No other non-measurable attributes mattered. Thus 'rational management' shifted the focus away from firms that saw themselves as providing unique products and services for different employees and consumers, perhaps loyal perhaps local, and onto the operating units of a 'legal fiction', an investment vehicle primarily engaged in making profits through buying and selling the operating units themselves, using earnings-per-share (EPS) and the finance market's opinions and expectations as their decision criteria. The shift was from managing operations to 'deal making'.

As business historians have shown, this kind of shareholder or investor capitalism seemed to overtake the 'managerial capitalism' of the earlier Taylorist era that focused on production and distribution efficiency. It is not generally appreciated that Taylor's successful consulting practice was not based, as many assume, on engineering or work measurement or even replicating the administrative methods he introduced at Bethlehem Steel, but rather on the introduction of systematic cost and production accounting in all manner of operations, including dental offices. As corporate accounting no longer merely supported production but was refashioned into conglomerate controls, short-termism, especially as behavior ruled by the market's shifting opinions, displaced the 'patient' capitalism that set management's eye on long-term goals and more challenging developments, especially globalization and new technology. Vigorous debate over the socially and economically damaging consequences or benefits of strategic short-termism continues (Hayes & Abernathy, 1980; Laverty, 1996; Marginson & McAulay, 2008; Marston & Craven, 1998; M. E. Porter, 1992) but whichever way the debate tilts, the BSchools' role remains quite clear. They did not cause the shift from managerial capitalism to deal making and short-termism. Geneen was not a BSchool graduate, nor were many of his fellow conglomerate-builders or asset-strippers. Rather they were enterprising individuals who understood how to create artificial financial or 'special purpose' vehicles that would attract the attention of potential investors and the stock market. The typical vehicle would not be a holding company owning a number of efficiency-seeking or rent-seeking units, as Carnegie, Ford or Wharton owned many different enterprises, but a money-making
machine in its own right that traded its inventory of firms and operations, rather than the products and services they provided. Its managers could play high-margin games with other peoples' low-margin money, very different from the rent-seeking firms that dominated the pre-WW2 economy that grew by acquiring monopolies and accumulating retained earnings into capital. The new post-WW2 firms borrowed hugely and explored how to transform managing debt into revenue.

The asset-strippers and conglomerate-builders generated an explosion of opportunities for docile young 'organization men' (generally men though after the 1980s BSchools attracted an increasing percentage of women). Though MBA applicants were expected to have 2 or so years 'work experience' they generally lacked management experience, and thus experience of dealing with the non-quantifiable aspects of the real world, but they were valuable nonetheless for the essential quantitative skills necessary to prepare and interpret the reports that gave the imaginary financial entity its uncomplicated substance. The BSchools responded, following this new market, and helped meet the demand that also attracted the other talents needed for high-velocity deal-making - young 16-hour-a-day pizza- and Coke-fueled accountants and lawyers. Law schools likewise developed two kinds of student, those headed towards the judiciary or the public sector, and the increasing numbers headed towards the expanding private sector as corporate and tax lawyers. There are sharp differences between managing to increase efficiency, to adapting firms to changes in their markets and technologies, to compete with new suppliers, all with a general focus on survival and growth, and the new kind of managing the conglomerate exemplified. The new business context made it acceptable, reasonable, and often highly profitable for managers to 'exit' the firm by selling it as a going concern, 'strip' its assets by breaking it up into parts to be sold or spun out, or liquidating its operations entirely whenever the deal 'made sense' financially (Hirschman, 1970). Survival was no longer the firm's taken-for-granted bottom-line. The senior managers doing these deals typically survived, of course, even when the abandoned employees, facilities and communities did not, by arranging personal deals like golden parachutes and moving from one opportunity to another, an evanescent layer of self-protecting fixer-agents like 'Chainsaw Dunlap'. To macroeconomists this was 'industrial
restructuring’, putting resources of every type to higher and better use. To a mutually-regarding group of super-managers who learned this new game and were able to reconstruct it so that it might be played better and more profitably, it was a new world, increasingly insulted from shareholders whether activist or institutional.

While deal making was always around it was now transformed into a new managerial ethos, especially manifest in the US merger and acquisition (M&A) ‘waves’. Economic historians have identified several M&A waves, one dating around 1897 following that year’s financial panic, that had the effect of consolidating industrial supply and demand into the monopoly-seeking trusts against which the Anti-Trust legislation was eventually launched (Neale, 1970). Another between 1916 and 1929 emphasized both the rent-seeking and the efficiencies gained by the vertical alignments examined in Chandler’s business histories, such as Ford’s full integration from iron and coal mines and rubber plantations through manufacture, assembly and then to dealerships, or the geographical integration as large firms developed national and international brands and distribution, such as DuPont, Quaker Oats or Sears Roebuck. While any type of corporate restructuring calls for quantification, the M&A wave of 1965-1969 was enabled by a special kind of analysis - corporate or operations valuation or, rather, the special skills and techniques needed to shape a market price for a deal that was a one-of-a-kind event where no real facts or market existed. It meant putting a value on an imaginary entity, and financial modeling skills were crucial to the rhetoric justifying the price arrived at and hotly debated between the investment bankers structuring the deal. ‘Industrial logic’ became the term of art for rounding out the valuation, akin to ‘goodwill’ as a balancing term, but lacking the track record that implied. Industrial logic was forward looking, typically at the non-rigorously-justified and non-quantified expectation that restructuring and rearrangement would lead to ‘synergy’ and greater profitability from one source or another, even though mergers seldom delivered on that promise (Kitching, 1967). For a new generation of BSchool students it was more pertinent that M&A activity paid well, often very well, as did the expanding consulting activity in restructuring companies sometimes for salvage, sometimes for sale, sometimes as alliances,
partnerships, or full mergers - all paying much better than the older style quantitative work of managerial capitalism.

With these developments and the improving market for MBA graduates whose aspirations correspondingly rose ever higher, the BSchools continued to expand. An increasing portion of the student body chose to work in the highly paid consulting and financial services. At the same time the financial services' share of GDP climbed steadily from around 8% in the 1960 to around 18% in 2000, attracting BSchool graduates into an industry their parents would never have considered as they encouraged their children into 'the professions' - law, engineering, medicine, dentistry, architecture, etc. It would be difficult to persuade anyone that being a financial analyst was to be a member of a profession, for their work lacked even the legal obligations to which accountants hewed. But the BSchools' economics, accounting and quantitative faculty departments continued to expand, absorbing the lion's share of hiring slots and seizing more space in the curriculum. The balance of faculty power, and the balance of the curriculum, shifted towards quantitative dominance, a clear response to the changes resulting from following a market that increasingly neglected manufacturing and other old-style managerial capitalism. The shift was also turbocharged by the rising politics of rationality and neoliberalism as Deans and faculty saw that adopting a quantitative orientation put them on the 'right side of history'.

As we all know, the entire BSchool apparatus was shaken to its core by the appearance of the rankings, first in 1974 in the magazine MBA, and then in 1988 in BusinessWeek. The rankings struck many as grossly off the mark and arbitrary, paying more attention to student views and salaries than to the criteria by which the faculty judged themselves and others (Cornelissen & Thorpe, 2002; Dichev, 1999). More importantly, the rankings were not under the schools' control, for the numbers on which the rankings were based were collected by outsiders and published without peer review. In principle the BSchools could re-shape their ranking by attracting 'star' academics with considerable 'public intellectual' presence, whose names would be known to prospective students through the press and TV, or by building splendid new facilities or providing more comfortable
dormitories or sports facilities or having a simulated trading room on site. But the rankings remained remarkably stable even as the criteria for hiring Deans began to be whether they could raise the funds necessary to shift the school's ranking (Policano, 2001, 2005). The rankings reminded Deans daily that they had more or less lost their control of their reputations - the root of which condition, of course, lay in their lack of the grounding theory of the firm that would provide a rational workable basis for judging their curriculum, faculty, teaching, and research choices and setting up the school's recruitment, hiring and placement activities. In the absence of this touchstone BSchools accepted being driven by the market forces they inherited, the pressure of the rankings exacerbating their market orientation. Even as the universities themselves were grappling with the consequences of commercialization and adopting a market orientation (Bok, 2003; Hersh & Merrow, 2005; Washburn, 2005; Wilshire, 1990), whatever intellectual aspirations BSchools had, as would normally be expected of a university department, were sidelined. The research that loomed large in most schools' rhetoric was almost completely disregarded in rankings that focused on student deliverables like salary on graduation at the expense of faculty chosen or measured deliverables.

Beginning with the pre-WW1 idea the HBS brought into the BSchool business, that 'research' meant the production of 'cases' for the school's case teaching, the BSchool notion of research went through a curious transformation. Research findings in the social sciences are tricky to value, but exemplary research such as Durkheim's analysis of suicide or W. H. Whyte's 'Organization Man' or Braverman's 'Labor and Monopoly Capital' or March & Simon's 'Organization' not only changed the related academic discourse, making a significant contribution to the discipline but also, and more importantly, changed everyday perceptions of the phenomena they examined, and in doing so did much to change public policy. The declared purpose of most social science research from Comte through Durkheim to James Coleman and Robert Putnam (Bowling Alone, 2000) was exactly similar to Pearson's intent to gather data and use statistics to inform better public policy. Little of the research done in BSchools since the pre-WW2 Hawthorne studies seemed to meet these criteria. Perhaps the private-sector firm was the new intended beneficiary, rather than the public discourse? But as the
early HBS notion of casework research was gradually eroded by time and the methodological debate in the social sciences, especially after the Foundation Reports, 'doing research' gradually came to mean 'getting something published' (Certo, Sirmon, & Brymer, 2010; Cooper, 2011). The weight of the claim, the new quality metric, being the journal's ranking rather than the work's substantive findings, again revealing another inevitable consequence of having no foundational theory of the private-sector firm (Geary, Marriott, & Rowlinson, 2004).

Naturally there was an explosion in the number and variety of business school journals that continues today (Khurana, 2007:306), creating a closed loop between publication and research achievement that, in the post-Foundation Report environment, was rapidly institutionalized into the BSchools' hiring, promotion and tenure practices. The loop remains more or less insulated from public policy practice, especially in the US where public policy schools are physically and institutionally separated from and have little interaction with the private sector oriented BSchools. It also remains insulated from private-sector management practice. Most of the post-WW2 developments in management practice have come from non-BSchool sources, imaginative managers and consultants being major contributors along with rafts of quantitatively trained operations researchers, accountants, and IT systems engineers. The result is the familiar rigor-relevance debate (Fincham & Clark, 2009; Knights, 2008) and, as indicated earlier, the idea that it can be eliminated by doing regular BSchool-style research on matters of greater concern to managers rather than letting it be driven by the academic journals' current debates and fashions ignores the tension between theory and practice that is fundamental to every professional school, defined as those educating students to make a difference in the lived world, in contrast to the academic schools whose principal objective is to make a difference in the discipline. No question quantitative methods had a huge impact on BSchool research, just as the Foundation Reports’ authors intended. While casework survives as a legitimate but déclassé ‘research activity’, publication is now as much about the author’s public demonstration of competence with the current approved quantitative research methods as it is about the researcher’s substantive findings, probably more so. Research methods competence leads to being hired
to teach other BSchool students the same methods, and so on. At the same time it is not clear that any of these methods are useful to practitioners in the current business environment, even in its more science and technology-driven, global supply-chain, or data-intensive parts. At most, today’s top managers hire methods-educated analysts to support their decision-making in much the same way Fayol did in the 1890s when he managed one of the largest iron and steel companies in France.

The tensions between quantitative methods, including economic analysis, financial analysis, and accounting, and the methods used to address the more complex questions of managing people of bounded rationality with social connections, emotions, heterogeneous skills, and attitude, or managing the subtleties of strategic choice and competitive positioning, were always an on-going challenge for BSchool administrators, highlighted by struggles over curriculum ‘real estate’, especially in its ever-expanding core, producing more convergence and less freedom in the students’ and faculty’s choices. Khurana reported some of the many inconclusive discussions around curriculum balance before WW2 (Khurana, 2007:154). These challenges were increased as the Foundation Reports and their associated funding decisions massively accelerated the trend to quantification. But Khurana’s phases suggest Kuhnian paradigm-shifts as each managerial ideology was displaced. In practice the non-quantitative courses mostly survive, just as casework survives, though strategy lost its ‘capstone’ status in the AACSB’s prescriptions as the AACSB shifted its role from ‘policeman’ to ‘consultant’ in the 1990s. The balance within the schools shifted and, with it, resources, organizational power and so on. The non-quantitative faculty and students became second-class citizens, the quants ruled.

While the considerable literature on curriculum structure and process indicates continuing concern and debate, the absence of an agreed theory of the managed firm ensured there was a great deal of talking past each other. In contrast, Herbert Simon’s 1967 paper on the design of the BSchool curriculum went to the heart of the matter - which was to understand what ‘balance’ really meant (Revans, 1967; Simon, 1967). There is a handy distinction between ‘multi-disciplinary’, suggesting
students take a variety of courses, some quantitative, some not, and 'inter-disciplinary', where students learn how to contrast and critique the differently based materials, and secondly learn-by-doing how to synthesize a selection of them into tackling a problem situation. In this way experiential learning can complement conceptual learning. Simon's pre-WW2 exposure to empirical social science as the handmaiden to inter-disciplinary political decision-making at the University of Chicago taught him the difference between 'multi' and 'inter', conceptually, epistemologically and as an educational practice. Then, in 1949, as a 33-year old full professor and economist, already a national public policy figure, he was offered the opportunity to play a central part in the reformulation of the post-WW2 BSchool curriculum. He moved to help Lee Bach found the Graduate School of Industrial Administration (Carnegie-Mellon). Bach had studied economics at Chicago, just as Simon had done his undergrad degree in economics and his PhD work there too. Both men were quantitatively skilled and understood the potential business impact of the tauter quantitative methods of operations research (OR) developed during WW2 and being refined and repositioned by RAND colleagues to both men. Simon's vision was for GSIA was that it would be fully stocked theoretically - in mathematics, economics, finance, OR, and the social sciences, and especially by its own empirical research activities - but would also be practice-oriented (Spender, forthcoming).

Simon's notion of practice was not the rigorous instantiation or application of theory that now seems to permeate our discipline. As the author of the concept of 'bounded rationality' his concept of theory was not in that tradition. Rather it was similar to Pearson's 'law-like' summation of empirical evidence. But at the same time, like Pearson, Simon knew theory should not even aspire to grasp an empirical situation completely; that would be to mistake mechanical or photographic representation of reality for the human imagination. The connection, of course, is that no evidence can be free from the constraints of prior theorizing, and no imagining can be free of experience. But this connection is not fully determined; there is some 'slop' between them. The discontinuities or Kuhnian anomalies are the fissures in our knowing through which we reach out into the unknown and bring something back that, cleaned off, named and aligned with
what we already know becomes ‘a contribution’ to our knowing. This process is the core of the scientific method, which relies on the interplay of generalities and experience. Hence practical situations were ‘practical’ and not ‘theoretical’ precisely because they cannot be analyzed usefully as instantiations of a single theory, for that would exclude the discontinuities essential to grasping the particular. Mirroring the distinction between generalities and particularities, theory is ‘in the mind’ and general while practice is ‘in the world’ and particular. Given the lack of a foundational or totalizing theory of the firm, it follows that many alternatives theories might be informative, as in the ancient story of the blind men and the elephant. For instance, it may make sense to think of a particular firm as a system for transforming purchased inputs into products and services. Equally it may make sense to think of the same firm as a community of particular individuals needing leadership and improved communications to collaborate better. Or it may be useful to think of the firm as having strengths, weaknesses, opportunities and threats in its particular relationships with its competitors. In general each of several incommensurable theories might throw light onto the situation, just as most of the BSchool departments have something to say about most organizational phenomena. For Simon the key to the concept of practice and of balance was to understand the human task of selecting and synthesizing a particularized ‘situated’ action from an inventory of possibly relevant the several theories.

At the time Simon wrote this paper he was still struggling with the same questions that precipitated the Methodenstreit. On the one hand the empirical generalizations of the historicist school, on the other the rigorous deductivism that is the Mengerian legacy, supported by a generation of rationalists like Walras and Jevons, that now dominates microeconomics; a duality that echoes Aristotle’s disagreements with Plato. In the paper Simon argued that an appropriately structured and managed business school could encourage habits of synthesis at the very highest theoretical level. His practice orientation was no ‘watering down’ but fully embraced the rigor of theory. The rhetorical power and political appropriateness of quantitative methods in the post-WW2 context would be both leavened and fructified by the interplay of rigorous methods and the more subtle human judgments offered by the social sciences and humanities. The quants and
The Quants' Impact on Management Education - and What We Might Do About It: A History-Framed Essay Rethinking the MBA Program

Ironically Simon failed to implement his interdisciplinary synthesizing vision at GSIA. He learned he could not sustain good relations with his economist colleagues as they moved steadily to the political right and embraced mathematics and rationalism as an ideology, delegitimizing synthesis. There was a crisis in 1951 and another in 1957 and Simon transported himself to CMU’s psychology department to advance the AI work begun when he met Allen Newell at RAND in 1952. In a sense Simon's 1967 paper was his effort to get his vision worked out and published a decade after the academic hurts of the earlier conflicts had been dissolved by time and his reputation solidified by the huge success of his AI work.

At this point we might conclude the impact of quantitative methods on BSchools was (a) just one facet of a broader cultural trend that went back to before Comte, (b) a reflection of their steady advance into business practice, especially after Scientific Management's impact, and (c) a specifically post-WW2 response to the development of new complex organizational forms and the quantitative approaches fundamental to managing them. The increasing cost-effectiveness and use of IT added its own considerable impetus. But Simon argued these developments could facilitate a better business school, they added to its possibilities and what it could usefully teach, both academic discipline and managerial synthesis. But it all required careful design and exceptionally talented BSchool management if the balance was to be maintained. Notwithstanding having seen and experienced its failure at GSIA, Simon remained encouraged. In many respects his hopes are mirrored in much of the discussion today. Without necessarily understanding the problematics laid out in Simon's analysis, many Deans urge a broad 'balanced' curriculum, with new courses in ethics, diversity,
cross-cultural studies, globalization, entrepreneurship and leadership, just as some suggest interdisciplinary work, especially the practical teamwork that can help students learn the day-to-day collaborative practices that mark much of contemporary business. Things, it seemed, could be brought under control, in spite of the absence of a foundational theory, largely by focusing on teaching students about synthesizing practice.

Alas, history got into the middle of this and changed the business education industry in ways that rendered Simon's vision little more than a smudge in our history, a promise scarcely explored let alone unfulfilled. In the US, as in the UK, political pressures in the 1970s began to push back private-sector regulation, especially in the financial sector. The political imperative was these countries' poor competitive performance, especially against Japan and Germany. Their conclusion was that the prevailing degree of regulation was excessive; too socialist, and it hobbled free enterprise. Free-market forces began their reign. In the UK Prime Minister Wilson facilitated these changes in part to establish the City of London as Europe's financial hub, to considerable success, the rapid expansion of the finance sector virtually making up for the loss of the UK's traditional manufacturing or managerial capitalist sector. Later in 1987 UK Prime Minister Thatcher inadvertently summed it up with a comment in an interview with the magazine Women's Own that 'there is no such thing as society' - recognizing society as something imagined but, in her view, a figment of mistaken imagining. In the US President Nixon initiated a series of legislative changes that in due course, accelerated by the policies captured in Reagan's 1981 Inaugural Thatcher-like declaration that 'government is not the solution, it is the problem', led to the 1999 repeal of the Glass-Steagall Act of 1932, the Depression era act designed specifically to keep citizens' banks from engaging in the kinds of speculative activity that made fortunes for Joseph Wharton, Cornelius Vanderbilt, J. D. Rockefeller and J. P. Morgan. The resulting story of financial catastrophe is well known, even if not yet well understood, and even if the intermediate 1986-1995 Savings and Loan Crisis, which might have been a lesson, got forgotten. But the central part that quantitative methods played, even more conspicuously in the later period leading up the collapse of Lehman Brothers in 2008, may be less obvious.
The rapid increase in deal making activity created additional demand for quantitatively trained MBAs. Deregulation provoked a massive increase in the number of financial speculators and 'hedge funds', investment vehicles that operated in the 'shadow markets' beyond the reach of the rules that regulated banks and insurance companies, and the stock market. These vehicles were designed to attract high-wealth individuals who were in a position to take major risks in the expectation of the higher-than-normal returns to be made trading junk bonds or currency and commodity options. Among the more famous was George Soros, a hedge funder and currency specialist who took an historic bet, selling around $10 billion short against sterling during the 1992 crisis. Sterling was devalued and Soros made a billion dollars net at the marginal cost of borrowing the $10 billion for a few days. In contrast the regulations had previously obliged those managing funds belonging to ordinary citizens (non-sophisticated investors, 'widows and orphans') to invest in 'blue-chip' low-risk vehicles that generated trivial returns - and so no prospect of the huge bonuses to be made as a trader. As the hedge funds expanded they created additional demand for quantitatively skilled MBAs. News of the money to be made began to percolate and transform the climate in BSchools as more students clamored to be equipped analytically for jobs there. But the more fundamental change was that an entirely new generation of finance sector staff - the REAL quants, often PhD physicists, biologists, engineers - 'rocket scientists' - began to invent completely new 'financial products', such as derivatives and credit-default swaps, that were produced by building models of entirely imagined trades that thereby brought the new markets into existence in which dealers and traders could then gamble - hugely (Avellaneda, 1999; Benninga, 2008; Patterson, 2010). None of this would have been possible without the huge advances in financial computing and Internet communication that made it financially and technically feasible to translate the real quants' mathematics into traders' tools available world-wide 24 hours a day - to 'monetize the math'.

As these new instruments and markets emerged hedge fund managers or financial operatives were no longer constrained to buying and selling real firms, real products, or real commodities. At the extreme, they took the most basic function
of the capitalist financial system - to gather up citizens’ funds so that free market forces could channel them towards profitable enterprises - and turned it on its head, focusing instead on the debts created as investments were made. The debts were collected and packaged, and then bought and sold as if they were real commodities. Further debts were incurred as traders borrowed further to buy, sell and take further options on these debt packages. The secondary markets that underpinned - or undermined - the 'real' markets, were then underpinned by tertiary markets, and so on, digging ever deeper into bottomless debt-mines. Wherever the debts mined accumulated like mine spoil as the economy expanded steadily through the 1970 – 2000 period, there were accumulating opportunities for others to repackage them and trade them as a highly leveraged gamble. Any kind of debt was grist for this mill, currency options, corporate debt, student loans, auto loans, overseas sovereign debt, etc. but housing especially - being most citizens' most significant borrowing - offered rich pickings. The most egregious example of this debt-mining opportunism - as far as we know at this writing - was Goldman Sachs's assembling, with hedge-fund manager John A. Paulson's help, and then selling packages of sub-prime US mortgages to 'clients' and then, for a fee with other clients' money, 'betting' on these same packages' failure. In his General Theory, Keynes disapprovingly called this kind of activity 'casino capitalism' (Dimand & Dore, 2000; Keynes, 2009), though he would surely have a sharper term today. Its 'investment' aspects are almost completely detached from the economy's wealth-producing activity and, therefore side step the financial sector's duty towards the nation. With this development the financial sector's operations moved well beyond any relationship between management and national duty, or management and private firms' productive efficiency, or even management and the energetic industrial restructuring the conglomerators and asset-strippers introduced, instead the 'high end' of the financial sector became wholly taken up with outright gambling - thereby denying its bounden duty to the country, the duty that gives the banking system its charter in a capitalist democracy. Plus, given the artificiality of the vehicles and markets created, there was also the strong possibility the game was often 'rigged' by its leading players.
While the BSchools seldom had the high-level quantitative skills necessary to train the new generation of rocket-science quants, new generations of faculty took on two supporting duties (a) to develop the ideology that would legitimate casino trading and so shape and forestall public policies that might otherwise move to disallow it, as Antitrust legislation had in the 1880s and 1930s, and (b) to train a new generation of operatives, traders and salesmen to use these models and sell the 'products' being developed, these activities merging retail mortgage, stock option and currency dealing into the blurred mass of computer networked activity visible in the new bank and hedge fund trading rooms. The new ideology was grounded in the proposition that the markets were efficient, one of the chief implications of the rationalism against which Simon struggled ineffectually. In the real world of finance the claim was the markets were more efficient at pricing something than any real individual or group of individuals could be. Markets were presumed to be especially more efficient than managers who were typically overconfident and under-informed, and often self-interested and inattentive to the shareholders' interests. A secondary effect of an efficient market was that it provoked the invention of and trading in new financial instruments, such as options, that leveraged the buying and selling of things tangible, be they shares in a business or a commodity like wheat, pork bellies or oil.

An energetic group of new economists, especially those from the Chicago and Rochester Schools of Economics, leveraged the work at RAND and underpinned the growing options trading activity with a 'theory of options' that seemed to prove markets knew best, and provoked further exploration of the implications. Three of these stood out. First, the managers' sole role was defined as maximizing the investors' return, no ifs or buts. Second, firms were not transparent and, hidden in the organizational shadows that even the best metrics and quantification could not penetrate, managers had incentives to skim the investors' returns as personal benefits - leading to what is now known as 'principal-agent theory' (often mislabeled 'agency theory', which is actually about human choosing in under-determined situations)(Spender, 2011a). Third, there seemed to be an answer to the riddle that Ronald Coase posed in his famous 1937 paper on the nature of the firm. He hypothesized firms existed only because they provided a context in which
economic transactions could be undertaken at less cost than those same transactions could be undertaken in 'the market'. Thus extending and expanding the markets in which investments could be translated into revenue would police and put additional pressure on firms and their managers. For example, if new markets were created for the intermediate products involved in writing a complex piece of computer software, the overall economic system - the programming project plus the market operations - would be more efficient. We see these notions implemented as moves to software modularization, object-oriented programming, and open sourcing. The same applies to the building of a bridge or a skyscraper, typically broken down into a complex of subcontracts awarded competitively.

The combination of these three implications meant that management was redefined as 'the problem' rather than as a resource or an asset; managers were seen as the custodian of investors' wealth, not its source. Khurana called this the 'delegitimation of managerial authority' (Khurana, 2007:317), though this does not capture sufficiently the glorification of those making and trading in the new markets, the bankers, traders and investment fund managers who dubbed themselves 'masters of the universe' (MOTU). The efficient-market approach also put renewed attention onto the market for 'corporate control' itself, the topic raised a century earlier in 1904 by Thorstein Veblen (Veblen, 1965). Veblen saw four competing groups seeking to appropriate the benefits of the firm's activity - investors, managers, employees and customers. Berle & Means's 1932 book left employees and customers out of the equation and focused on the separation of ownership and control. The new economists argued that since markets were efficient, control should be passed as fully as possible to those operating in and listening to the market (for the firm's shares, for put and call options, for derivatives based on them, for corporate control, etc.). Managers were merely passive agents. Implicit, of course, was a theory of the firm, though not one that had a significant place for anything other than a purely mechanical, transparent and rational manager. This group of economists aggressively 'colonized' the territory to be occupied by a foundational theory of the managed firm (Fine & Green, 2000), an area more or less abandoned by generations of organization and management
theorists who had been unable to add much to their leading candidate, bureaucratic theory, since Cohen, Cyert, March, Simon and their CMU colleagues pursued a 'behavioral' theory of the firm (K. J. Cohen & Cyert, 1965; Cyert & March, 1963; March & Simon, 1958). Interestingly, these writings were the fruit of GSIA's exemplary non-quantitative research program in the years before the neoclassical economists extinguished Simon's vision of a school of synthesis.

BSchools' Challenges

The story in the preceding sections is that the business schools, especially in the US, simply followed their market, responding to the new opportunities available to their students as the economy's center of gravity shifted from commodities and Taylorist manufacturing to retailing, to services in general and then to post-deregulation financial services in particular. Quantitative methods played a major role in facilitating the shift and while the market for BSchool students grew steadily throughout, those with quantitative skills were able to take particular advantage of the changes. The quantitative segment of the curriculum was significantly strengthened, especially after the 1959 Foundation Reports. Student interest in manufacturing declined while interest in jobs on Wall Street and in the IT, deal-making, and marketing consultancies rose.

So, back to the question in title of this essay, what happened and what is to be done about it? What happened was that democratic capitalism once again displayed its remarkable capacity to re-invent itself as the world changed - irrevocably. The fact that the financial services sector, and eventually the world, was savagely transformed by the quants' capacity to invent some new products and markets that opened up a new universe of extraordinarily highly paid work, and that these developments are now widely judged to have been profoundly destructive, corrupting and against the public interest, cannot be charged against the quants, nor the BSchool professors who taught them nor, really, those schools' administrators and Deans - any more than the scientists and administrators who produced the atom bombs were to be blamed for the consequences of their use in
Japan or the global consequences elsewhere as they competed amongst themselves for jobs, scientific fame or power. Warren Buffett noted the analogy in the Berkshire Hathaway 2002 annual report and remarked "derivatives are financial weapons of mass destruction". Like the BSchool professors and their students, the atom scientists and engineers were the human components in a complex dynamic social and technological system that had no clear structure and few identifiable centers of control, perhaps in Washington, perhaps in Wall Street, perhaps in the schools and universities in which students were sometimes encouraged to discover and explore questions about the human and social values that shape the public's democratic choices.

The story is also that BSchool administrators and those engaged in research, teaching and community service lacked an anchoring core of concepts or principles that might have enabled them (a) to balance a curriculum of quantitative methods and rigorous theorizing against the different understandings of the human condition available through the liberal arts and social sciences, and (b) to handle the tensions present in every school oriented towards practice between what is best learned intellectually through study and what is best learned experientially. Absent this touchstone the BSchools, indeed the entire management education enterprise, remains up for grabs as a set of poorly inter-related educational and promotional activities complemented by the din as one discipline was thrown against another without evident clarification or conclusion. The ebb and flow of tension between the rankings, administrators, and curriculum designers continues (Adler & Harzing, 2009; Morgeson & Nahrgang, 2006; Özbilgin, 2009; Wedlin, 2011). In the absence of a core theory of the managed private-sector firm the current effort to patch courses on business ethics, corporate social responsibility, cross-cultural or diversity management, corporate greening, sustainability, and so on into the existing curriculum cannot be theorized or otherwise justified, however good it may sound to the administration or appear in the fund-raising or recruiting materials. It may salve some consciences but it cannot do much for students not being taught how to incorporate those materials into real-world practice. They might just as well study meditation or tapestry making.
What is to be done? Our historians, both critical and supportive, have hugely enriched the expanding literature on BSchools. After more or less ignoring our history for 50 years we have now learned a great deal about the events and processes that shaped our schools and their doings (Cummings & Bridgman, 2011). But the historical method has its own shortcomings, and these are seldom considered or even discussed in our environment (Booth & Rowlinson, 2006; Clark & Rowlinson, 2004; Collingwood, 1994; Madansky, 2008; Rowlinson, Clark, Delahaye-Dado, Booth, & Procter, 2008; Wright, 2010). First, historical research is provocative rather than conclusive. It indicates what kinds of theory might be brought into consideration without ever offering a theory of its own. But, as the Methodenstreit showed, the methodology's powers are persistent and balance our other research methodologies, especially those of the 'objectivists' and positivists. The historical method does not presume causality; rather, in addition to piling up facts, it searches for connections that might lead the researcher's imagination towards law-like ideas. In part the historical method can be understood as the practical consequences of being without causality as an intellectual tool. So it is a pity BSchools' methodology courses do not deal with the historical method (Van Fleet & Wren, 2005). Rather these courses have often shriveled into rote-learning of normal-distribution statistics, ignoring the mysteries of epistemology, along with logic itself, non-Gaussian statistics, fuzzy sets, small world phenomena, simulation and the rest of the ever-expanding toolkit of quantitative tools. Our students deserve more; perhaps indicated by statistics suggesting that while the BSchool students' abilities are steadily improving, their grades, attendance and intellectual achievements are declining. Along with grade inflation, the curriculum struggles and inter-school competition seem to be dumbing down the MBA product.

Second, the historical method requires a 'narrative line'. This is laid into the analysis by the historian and becomes the lens by which historical facts are noted or ignored. For instance, most of the pre-20th century US universities were created from the religious universities of the 18th and 19th centuries. Yet religion is scarcely mentioned in the BSchool literature (Khurana's comments being a notable exception). But Catholic business schools, especially those of the Jesuits, do not offer the same educational experience as secular schools. Mormon schools such
as BYU differ, just as the New School in New York differs and the technology-oriented schools like MIT, Polytechnic and Rensselaer differ too. Even when the curriculum looks the same, the student experience differs in important ways suggesting the school's culture can become an important narrative line. Likewise, our discipline's recent historians offer different narrative lines. O'Connor's was the loss of the humanism at the core of Follett and Barnard's theorizing about economic activity in a capitalist democracy (O'Connor, 2011). It follows that recovering and re-institutionalizing this humanism, positioned as the core principle against which everything else is tested, is both a prescription for some BSchool strategists and also an explanation of what many Deans and faculty are trying to do right now, impelled by their own intuitions and reading of the world around them.

Khurana's narrative line spun out of the 'professionalization project'. Whether there ever was such a project, with its implications of the US elite overtly collaborating in what we now call 'social engineering', is less important than the line's strength as a rhetorical device, making it possible to tell the story of the project's birth, decline and ultimate dismissal. Without it we would make little sense of his phases and the transformations in educational and institutional objectives they implied (Figure 1). In this essay I leverage off his phases as choices made by BSchool administrators, arguing (a) the BSchools were following the market changes that drove their students' interests, and (b) a distinction between the older opportunities in managerial capitalism, and deal-making or investor capitalism and the new ones in casino capitalism (Figure 2). Hence I do not need to subscribe to the 'professionalization project' and look instead towards the history of the economy, especially to the history of US private sector financial activities and services. In the first of Khurana's phases, in the pre-1920s, business people were probably more focused on acquiring or resisting monopolistic rent-streams, be they based on proprietary advantage in metallurgy (Wharton), distribution (Rockefeller), manufacturing (Carnegie & Ford), mining (Hickey), or news (Hearst), or from political connections (Wharton again) or mass appeal (Wrigley's chewing gum perhaps), than they were focused on the 'higher aims' of public duty - and because of this, Antitrust legislation was needed to restore a
balance between business and the public weal. Thus I argue the story of the modern US business school begins with managerial capitalism and the idea that hiring better trained managers would lead to better profits, the same impulses that propelled the earlier proprietary schools that sprang up in the 1750s (Bossard & Dewhurst, 1931; Khurana, 2007:88; Ruch, 2003). This frames most of the early university schools as local responses to the local need for better managers, competing directly with the many existing proprietary schools. Eventually, primarily through their closer social and political connections to the capitalists of the day, the university-based schools became better positioned to meet the national needs for managers that became particularly urgent in the post-WW1 period of US economic expansion. These days, in contrast, we see a rapid expansion in the education-for-profit sector, with business studies leading the way (Apling, 1993; Tierney & Hentschke, 2007).

As BSchool historians know, the early university schools' curriculum was not based on any theories or reasoned collection of American insights about how firms or democratic capitalism worked, nor on the curricula offered in the many proprietary business schools that focused on book-keeping and secretarial work such as correspondence and advertising (Freedley, 1853, 1879). Rather it was transported from the public policy schools in Germany where the foundational concept was the same as that of Alexander the Great millennia before - that better trained administrators would lead to a more efficient, manageable, and militarily and economically powerful State/Empire (Redlich, 1957). Note the Prussian administrators' concept of duty was as a state employee, not much to do with the 19th century American private-sector entrepreneur's moral contest of social duty versus personal gain. In making the translation from Cameralism noted by Woodrow Wilson (W. Wilson, 1887), American writers replaced the political process as the source of an organization's goals with private sector market forces. By the 1920s the BSchools syllabus had taken on the familiar external-internal analysis and arrangement that remains so familiar today (Marshall, 1921). The subsequent shift to investor capitalism was, as so often in history, an unanticipated consequence of continued economic growth and the politically supported (and tax structured) desire to widen share ownership and thereby to expand and stabilize
the middle class, and the resulting growth of mutual funds as the US alternative to
the firm or cooperative-based pension schemes typical in Europe. Ordinary
people ('unsophisticated investors') discovered their modest savings need not lie
dormant in the bank, but post-FDIC especially, could be 'managed' - and thus a
new financial industry was spawned.

Third, especially when it comes to the rise of casino capitalism, the story hinges on
the distinction between quantitative methods, such as statistical analysis, that
reveal relationships in bodies of empirical data about past events and those of
'mathematical finance' that allow analysts to model and price a future event. In
practice such models facilitated (a) making or valuing a bet on an anticipated
event, such as a forward price for oil and (b) making a market for these bets,
perhaps in oil options, wherein one trader's valuation may differ from others' and,
thus, arbitrage opportunities arise (Avellaneda, 1999; Benninga, 2008). The
distinction between analysis and modeling is precisely that explored by Pearson
and, as Porter's work detailed, between the English economists and the French
engineer-economists many decades before (T. M. Porter, 1995:57). It was also
central to Simon's thinking and his notion of 'empirical positivism', quantification in
the service of public policy (Spender, forthcoming).

Managerial capitalism, shareholder capitalism and casino capitalism all created
significant new demand for MBAs skilled in quantitative methods, but to be
harnessed in very different ways. Developing evidence-based generalizations
from empirical data about the world is one thing. Developing models and
imagining the new worlds and markets that facilitated bets on the way the world
turns out is quite another. The games of science fiction, computer games like
Battlefield 2, or open-ended virtual worlds such as Second Life are whatever
people wish to make of them, they are abstractions not tightly connected to the
lived life - though social and psychological connections are explored in Turkle's
work, for instance (Turkle, 1984). But the distinction vanishes in the financial
services area for their imaginings are the veins and arteries of our capitalist
corpus. The boundary between the game and the lived life blurs, for money and
markets are imagined constructions too. Indeed many of those involved in the
financial convolutions of 2008 described their activities as 'the game', one they were strongly motivated and incentivized to 'win' by scoring the biggest personal takes (Sorkin, 2009). Clearly both types of quantitative skill are valuable and belong in the BSchool curriculum - and there is no compelling evidence that teaching them has much influence on society at large or even on most individuals' personal philosophy. If the economy is plunging through the type of historical cycle that interested Kondratiev, Keynes, Schumpeter or Minsky that is a social and political matter and changing the business school curriculum is not going to have much impact.

Fourth, the way the BSchool syllabus's quantitative and non-quantitative elements are supposed to fit together as a coherent student experience has not been much discussed, one notable exception being Simon's 1967 article. The pedagogical challenge is illuminated by the distinction between multi-disciplinary and inter-disciplinary, the first being aggregative, the second emphasizing synthesis. Many Deans talk optimistically of the beneficial consequences of having students study across the faculty silos as if multi- and inter- were pretty much the same. This makes light of the faculty's strong incentives to mine their disciplinary silos and teach what they know best, and the sheer pedagogical challenge of helping students develop the indefinite skills of synthesizing. What of this can be taught or graded? Casework is sometimes, but not always, seen as a reasonably economical and manageable way to create the context in which students develop synthesizing skills (Rochford & Borchert, 2011). Sandwich or co-op courses may be less economic but more effective (Berggren & Söderlund, 2011; Blackler & Regan, 2009). Are there ways of preparing students to profit from this kind of experiential learning? The first step is probably Deweyian, opening the student's mind to the possibility of alternative ways of viewing what is already known, sometimes called 'defamiliarization'. This means the development of our native critical faculties. Criticism was long regarded as the spur to the growth of knowledge in the natural sciences (Lakatos, 1970; Lakatos & Musgrave, 1970). It has a long history and is still taught in literary fields as a way to develop creative writing skills (Foster, 1968; Starkey, Hatchuel, & Tempest, 2004). But the teaching of criticism and 'critical thinking skills' has few evident places in the BBA or MBA.
curriculum and is seldom considered central to the BSchools' methodology courses (Reid & Anderson, 2012). Consequently few in our area make any connection between (a) the craft of criticism and (b) the strategic or entrepreneurial synthesizing process in business. Yet just as in Kurt Lewin's familiar 'opening and closing' model, the second learning step is synthesis, experiential as one closure at a time, the antithesis of both generalizing and theorizing.

Fifth, in spite of Simon's work, the success of GSIA's research into a behavioral theory of the firm, and the subsequent theoretical and commercial developments in AI and expert systems, BSchools seem not much interested in tabulating business-relevant heuristics or the processes by which they arise. Note the distinction previously noted between (a) the use of statistics to tease correlations out of empirical data and (b) the use of mathematical modeling to price against future markets is the distinction between heuristic and theory in different language. Heuristics are inductions from the past, theorizing is forecasting the future (Gigerenzer & Selten, 2001; Gigerenzer, Todd, & The ABC Research Group, 1999; Welsch & Cyert, 1970). Heuristics are evidence of attention, observation and reflection, often facilitated by discussions or communications with others engaged in similar activity (Schön, 1983, 1987). Communities of practice, industry and professional meetings, quality circles and so on facilitate the development and circulation of heuristics (Spender, 1989). Heuristics can be proto-theories, suggesting ongoing dependable patterns. The fields of medicine and engineering are marked by large bodies of practical heuristics, 'best practices' and ways of doing passed down through the ages, steadily accumulated through ongoing practice (Eamon, 1994). Theory differs because it is deductive, proceeding from axioms to demonstrations that are only as valid as the axioms. There can be no logical justification of the axioms; they are the imaginative presuppositions that allow the theorizing to begin. The debates around 'positive economics' and the logical relationships between predictability and axiomatic validity are some of the better-known consequences of thinking through the difference between heuristics and theories (Boland, 1979; Friedman, 1953).
The interaction of heuristics and theory can become fruitful when heuristics lead
the human imagination to law-like relations - hypotheses - that are testable. It is
widely recognized that some preparation of the mind can help. One means is
depth immersion in the context of practices from which the heuristics are emerging.
The second being the process of mind-clearing made possible by critical thinking,
often followed by a period of mental diversion, blanking the mind in the expectation
that something will 'pop up'. Wittgenstein would spend his afternoon at the movies
watching Westerns; others go to the gym or for a walk. It is widely argued that a
profession stands on a body of 'professional knowledge', but it is less obvious
what this actually comprises (Abbott, 1988; Larson, 1977). The positivist tic, of
course, is that all human knowledge is theory, rigorously constructed and
empirically validated. While there are workable theories in some fields an
examination of the 'knowledge' actually used by most professionals - architects,
engineers, lawyers, doctors, accountants, etc. - suggests they use heuristics much
more (Schön, 1983, 1987). In engineering, for instance, piping, bridge building,
electrical systems design and so on are governed by the government-backed
standards maintained by the professional engineering associations such as
ASME. While these are often under critical scrutiny by academic scientists, they
are largely built up from practice-sourced heuristics. The same is true in medicine,
thought those standards are less tabulated and formalized and more the practices
inculcated during training. In the law there is virtually no theory-guided practice
though 'natural law' thinking remains a major influence in the US. Neoclassical
economics, in contrast, is all theory and no heuristics save for the selection of its
axioms, but perhaps economics is not a profession. It is easy to forget the
European university was professional in origin, springing into existence as the
Arab-mediated translations of the Greek classics provided European scholars with
a fresh body of knowledge from which to critique medieval religious dogma and
establish the new professions of law and medicine (Haskins, 1957). The
knowledge transferred provided the basis for new thinking and practice in the law,
notably at Bologna, and medicine, with translations of Hippocrates, Galen and
Avicenna. The professional heuristics made available were more immediately
influential than the mathematical and astronomical theoretical works of Euclid and
Ptolemy that eventually led to the profession of natural science. Professional theology and education came later (Haskins, 1957:54).

Sixth, Khurana noted the BSchools' recent turn to 'leadership' (Avolio, Walumbwa, & Weber, 2009; Khurana, 2007:352; Nohria & Khurana, 2010) as a result of a 'crisis of identity' in the 1990s. He traces this to the 1940s military-oriented leadership studies at Ohio State. Military schools had a long history of interest in leadership and the psychological angles opened up by the work of the pragmatists, Freudians, and Gestalt experiments had a major impact on officer training during WW2 and thereafter. Many of the techniques and practices developed passed into private sector business through the work of ex-military human resource managers and consultants. Khurana noted the distinction between leaders and managers popularized by Zaleznik, who had no such background. He defined leaders as imaginative, frame breaking and charismatic while managers focused on rationality and control, reaching back into Weber's distinctions between traditional, rational and charismatic authority. A rather different concept of leadership turns on synthesis, leaders being those able to respond to uncertainty by synthesizing the available evidence into reasoned action (Spender, 2008a). Synthesis requires imagination, of course, and given that everyone faces uncertainty continuously in the real world, everyone synthesizes - including the dullest of managers. In this event Zaleznik's distinction cannot bear the weight and leadership turns on how one person's synthesizing relieves others of having to do it for themselves. So defined, leadership turns not on a solitary person's imaginative capabilities, but on the interactions between people - leaders and led. This di-pole approach to leadership goes back to the Greeks and beyond, but pre-WW2 concerns about leadership in business are equally obvious in the work of Barnard and Follett. Indeed a glance at a typical 19th century management text like Freedley (Freedley, 1879) or an early 20th century text like Jones (Jones, 1914), shows the approach to leadership as a matter of personal character and influence over others that evokes the notions of social duty and moral rectitude in Khurana's first phase. It also recalls the struggle between leadership as the natural gift of the elite and the development of quantitative methods to control the non-elite mentioned in Porter's analysis (T. M. Porter,
1995). In general I see leadership research as (a) stymied by the lack of a theory of the ‘led firm’ or even the leader-led di-pole, and (b) caught between its traitist heritage and the need to develop a contextually-contingent approach to human agency (Avolio, et al., 2009; Hunt, 1999; Spender, 2008a).

During the same period there has been a comparable turn to ‘entrepreneurship’ that is perhaps little more that 'leadership' translated from psychological and political discourse and into economic language (Acs & Audretsch, 2003; Sexton & Landström, 2000). Once more HBS was leading our industry’s curriculum change (Keller & Keller, 2001:445). The study of entrepreneurship goes back as far as that in leadership, though modern treatments begin with Defoe and Cantillon and lead on to Schumpeter and Kirzner. The emphasis is less on the leader or entrepreneur's personal characteristics than on the economic context and on how the human qualities of imagination impact its perception. But the turn to the leader as the source of economic order and growth can also be interpreted as a response to the lack of a theory of the managed firm I note throughout. Instead of looking to the firm, as something comprehended, the analyst’s attention is shifted to the individual/s who bring the firm (whatever that is) into existence and direct it. Likewise strategy theory is a search for the firm’s individualistic or competitively differentiating aspects in a different language or conceptual context. But the shift from the firm as both an entity and the focus of theoretical attention and towards the individuals and judgments that articulate it brings the relationship between those leading and those led, leaders and managers perhaps, or managers and the managed, or strategists and implementers, back into the analysis. Many BSchools have courses on organizational communication, just like those in the pre-WW2 syllabus, though these tend to be less about composition and the construction of messages than about IT and moving data and messages around. The field has obviously been transformed by IT and mastering the firm’s use of IT is clearly hugely important (Ghadar, 1998). But the positivist disposition to presume all human knowledge is theory and explicit diverts attention away from the forms of human knowing that are less articulable and thus beyond being communicated by IT systems.
New studies in ‘knowledge management’, largely propelled by Polanyi's distinction between explicit and tacit knowledge, have helped clarify the distinctions between the various types of knowledge real organizations generate and apply (Choo & Bontis, 2002; Spender, 2008b). There are many distinctions other than Polanyi's and each opens up a different set of questions about how organizations and their communications might work. Mine spins around on the differences between data, meaning and skilled practice and suggests each needs to be managed differently, thereby changing the problematics of organizational communication (Spender, 2007a). While IT moves data around wonderfully, it is of little use when it comes to moving meaning or best practice. These other types of human knowing, less familiar today than they were in the 18th and 19th century before the rise of positivist science and quantification, imply different kinds of communication practices. Chief among these is the ancient art of rhetoric or persuasion, the heuristic-based language practices that remain crucial to legal and political professionals. Rhetoric was a principal component of the trivium and quadrivium, the medieval education for those aspiring to power in the State or the Church. Today’s public speaking courses translate ancient rhetoric into modern dress and remind us that management is not just a matter of deciding but is also a matter of persuading others to follow one’s bidding under the conditions in which explicit incentives do not apply or cannot be formulated (Cheney, 1991; Denning, 2007; Leith, 2011; O'Keefe, 2002).

To close this selection of BSchools challenges it is clear our central lack is of either a core theory or even an established and ordered body of managerial heuristics. It is revealing to see that Simon's PhD thesis, what eventually matured into Administrative Behavior (Simon, 1947), began by listing, and demolishing, the management heuristics accepted at the time, now generally known as 'classical' organization theory's principles or ‘proverbs’ (Shafritz & Ott, 2001). In this sense, Simon threw organization theory and its associated notions of managing into a crisis from it has yet to recover. Today, without a touchstone, or even a level of practical agreement, BSchool personnel have no way of balancing the quantitative and non-quantitative content of the many different materials that seem useful to prospective or practicing managers. It is surprising that the active pursuit of a core
theory of the firm has passed from those most obviously dedicated to it - organization theorists - to others such as psychologists, political theorists, cultural theorists, even biologists, but most importantly to a group of micro economists prompted by Coase. Transactions cost theory, principal-agent theory, property rights theory and so on are attempts to enter the 'black box' of neoclassical economics or, more precisely, to develop some sense of a firm's internal structure and process when some of the axiomatic prescriptions of neoclassical theory are not met (Foss & Klein, 2005; Williamson & Winter, 1991). The clearest shortcoming being Simon's 'bounded rationality'. Transaction costs theory grows out of knowledge asymmetries between markets and managers, principal-agent theory out of asymmetries between principals (owners, perhaps, or managers) and agents (managers, perhaps, or employees) (Spender, 2011a).

In general the micro economists presume firms are and can do whatever markets cannot and given they feel confident about their understanding of markets, they can give us some indication of what managers do. While micro economists have been making these developments organization theorists have done little to move beyond the theory of bureaucracy and its dysfunctions (Donaldson, 1985). Yet the BSchools' unmet need for a core theory is so considerable that many different arguments have been developed, some bringing in evolutionary approaches that deny the relevance of managers altogether, in ways not considered by Khurana as part of 'delegitimating' them, such as population ecology (Hannan & Freeman, 1977), organizational routines (Nelson & Winter, 1982), or the firm as an autopoietic organic entity (Beer, 1972; Maturana & Varela, 1980). The most evident response in BSchools today is to duck the 'what is the firm?' question, to simply pile in courses that seem to make sense intuitively, and to hope that the students are able to both integrate across them into some kind of coherent message and apply them to everyday managerial practice. This is scarcely justifiable. Without doubt quantitative studies deserve a major place in the curriculum, perhaps one more extensive than we see. But the students deserve some ways of knowing how to make use of them and this must be double-edged. They should be taught the best quantitative techniques available, but also be taught their limitations, where they have no place.
Concluding Comments

Our historians have put us in a much better position to understand the BSchools' absorption of quantitative methods and, thereby, to look at our present situation and future through that lens. Certainly these methods' uptake was part of the modernist cultural shift that eventually led to the development of casino capitalism and completely changed relationships between business, banking and the citizenry. Their development was obviously useful to business; it led to better control, better market intelligence, better absorption of scientific and technological knowledge, better understanding of the differences between people and cultures, and so on.

Our history showed two major concerns about the BSchools' part in this. First, without a grounding theory of the private-sector managed firm in which there was a defined role for managing, or even a robust set of heuristics that could stand in for this theory, neither professors nor students could determine how quantitative methods should or could be integrated into a curriculum that had irreducibly non-quantitative components. Presently the AACSB's MBA specifications include 15 credits of 'foundation courses', all but 4.5 quantitative, 24 credits of 'core courses', the majority of which are quantitative, a further 24 credits of 'communication' courses, which includes the course on 'research methods', 9 credits of 'management' which includes HRM and strategic management, and a final 3 credit capstone on 'global business'. The tilt towards quantitative course is similarly evident in Navarro's survey of the top-ranked US schools' curricula (Navarro, 2008:112). Recall that at the beginning of the post-WW2 curriculum reform period the AACSB still considered corporate strategy the MBA capstone course, the dominant demarcating managerial topic that was not yet subsumed under quantitative methods. The strategy textbooks of the day were grounded in the external/internal assessment or SWOT model (Thompson & Strickland, 1987) or in HBS's strategic matrix (Learned, Christensen, & Andrews, 1961). In the 1990s, echoing the wider transformations to the quant-driven conglomerates and the evolving instruments of investor capitalism, micro economists transformed strategy...
into a field dominated by statistical analysis and modeling (Rumelt, Schendel, & Teece, 1994).

The lack of a touchstone meant Deans had to manage the inter-disciplinary tensions implicit in the MBA as a generalist program through personal intuition, charisma and political skill rather than through reasoned debate at the level of the particular disciplines clamoring for curriculum space - in short, undemocratically. There would be less of a lack when it came to specialist master's programs that stressed a particular industry, discipline or technique and could be shaped according to what was happening in the discipline. A rapid proliferation of 'specialist' or 'industry specific' MBAs followed that were both difficult to distinguish from MSc programs and to justify as preparation for management practice. The indications are that these degrees are increasingly popular at schools below the top tier and so serve a very different segment of the market. At the same time the wider cultural turn to numbers, the explosion of IT assets, and the resulting imperative to quantify all research, enhanced by the rising politics of rational choice liberalism, over-prioritized quantitative methods and unbalanced the BSchools. These developments further complicated the BSchools' relationships with the rest of the university and their concept of research.

A second concern was that the lack of an anchor left the schools responding haphazardly to the market forces pulling them this way and that (D. Wilson & McKiernan, 2011). We are still unsure what business wants from higher education, beyond 'critical thinking' and 'problem solving skills' (Bowers & Metcalf, 2008; Doria, Rozanski, & Cohen, 2003; Oblinger & Verville, 1998). The result is inordinate attention to what can be measured, the rankings, and the goal-displacement that follows (Policano, 2001, 2005). The role of Dean changed from leadership of an educational product and of the schools' intellectual processes and culture into one of rankings-boosting public relations management and fund-raising. The likelihood of major transformative intellectual leadership, like that of Hutchins at the University of Chicago, Donham at HBS or Bain at LBS, was displaced by institution and revenue building like that achieved, superbly, by Jacobs at Northwestern.
In spite of these concerns our industry prospers mightily delivering ‘the world's most popular degree’ (Fernandes, 2005) to what seems like an ever-expanding market. But if we are to learn anything from the last few years, it is that there are no ever-expanding markets. Clearly we cannot see what lies around the corners on the trail to our future, but it might be important for us to filter off some of our ever-more-healthy revenues into researching the same questions that were current at the time the modern business school began - and thereby prepare to reinvent our industry in the different destabilizing strategic situation that will surely arise with a bang. Khurana framed our historical situation as a ‘professionalization project’, suggesting the overall task was to help transform management into a profession (Khurana & Nohria, 2008). But first we need an approved body of knowledge of the type evident, even in medieval times, in medicine, law, architecture, engineering, accounting, etc. Business schools still have no such a body of knowledge. Without it, quite apart from the question of making management a profession, there remains the question of what we think we are doing - beyond helping democratic capitalism function.

The historian’s tale in this essay offers insights into where we might probe for this theory. In particular it raises questions about why we are so smugly comfortable with the traditional discipline-oriented syllabus, in spite of our concerns about ‘relevance’. Khurana has shown us that a historical analysis offers an exciting alternative that may well suit practitioner-oriented students much better. First, we see that each phase implies a different theory of the managed firm, so we are not looking for a single totalizing answer; rather, in true post-modernist style, for manageable pluralism. The search for a totalizing theory is clearly a strategic error, for life is not lived this way. So almost all the social sciences have taken this on board. Given methodological pluralism, Simon’s 1967 discussion is re-framed as especially relevant because he took pluralism to a necessary precondition to any effective management education program. The schools’ task is then (a) to introduce the student to a plurality of theories and heuristics that might illuminate the practical situation, and (b) encourage the personal capacity for entrepreneurial synthesis that leads to reasoned action. To which I would add (c) develop an understanding of leadership and, in particular, the rhetorical practices that produce
agentic collaboration in the under-determined situations of private sector business, those that cannot be completely planned. Leadership of the delicate synthesis of planned and unplanned activity is central to management practice.

But the story also suggests the move towards casino capitalism is irreversible, here to stay, an aspect of the tilt from the intensely person-centered firm of Khurana’s first phase to the increasingly quantified and impersonal financially-defined management now common. It has likewise changed the BSchool agenda forever. The current calls for ‘servant leadership’, ‘stakeholder’, ‘sustainable’, or ‘ethical management’ are often naked nostalgia for an imagined past world when owners, management and employees cohabited the socio-economy peacefully and productively. As Veblen pointed out, and a cursory examination of the 18th and 19th century economic history reveals, this world never existed. The five-tier approach in this essay may be useful. First, theorizing managing as a social duty, the idea that motivated Bok, Khurana and many others. Clearly the disciplinary and institutional separation of BSchools and the schools of public administration has made re-examining this phase this more difficult. Yet BSchool students need to know the public sector exists and be able to consider its organization, processes and contributions critically within the political context of the day. Firms need to be situated. Next comes managerial capitalism, theorizing managing as designing and operating firms in the Taylorist manner, the pursuit of efficiency and value creation. Third, deploying and managing conglomerates and M&A activities, putting managers in the position to trade firms and their assets and so move resources to their highest value. Fourth, theorize managing as shareholder capitalism, no longer anchored to the concept of the firm that becomes dispensable when the deal makes financial sense. Finally, fifth, managing in the context of casino capitalism, where everything in the preceding phases is ‘in play’ to those with the necessary capital, skills and interest to take part. Casino capitalism, perhaps more regulated and with less of a Wild-West frontier feel, will remain so as long as the current capitalist legislation that allows it remains in place. Nothing very complicated about this. But each phase implies a different, even incommensurate, theory of the firm or body of heuristics. BSchools must teach all, plus their synthesis towards purposive action, and so equip the modern
student to deal with what is ‘out there’ today. A curriculum that fails to cover all phases fails. Holding such a BSchool together calls for Deans with the prodigious skills Simon identified half a century ago - in a time considerably less complicated than today.

The nature of the firm in the first four phases is relatively easy to discern. Each provides the beginnings of a basis for a curriculum. The first period firm is the Victorian combination of profit seeking and social service. There are certainly good reasons to strengthen students’ understanding of the interplay of the public and private sectors and its management, and to put forward a view of the firm as an element in a complex and heterogeneous social network. The second period firm is a socially-oriented instrument or ‘engine’ of the economy (Mokyr, 1990; Nelson, 1990). In the second and third phases we find the conventional firm-centered aesthetic, the idea the firm is an isolated entity, confronting markets and competitors while trying to maximize under management’s control - perhaps maximize profit or market share, perhaps longevity, perhaps some other social ‘objective function’ - but modeled as an independent and controllable input-output system. The theory places management at the firm’s center. The human relations approaches balance out the more objective finance and system modeling approaches - a balance operationalized in the Balanced Scorecard as it stresses the pluralism and multidimensionality of the management-centered model. Suspicions that management is less central to what happens, perhaps even irrelevant, have been around for a long time, in the population ecology movement, of course, but also in the puzzling work on firm size by Ijiri and Simon (Ijiri & Simon, 1977) and other work on Zipf- and power-laws. Unlike the second and third phases that are firm-centered, the fourth phase firm’s center is the free-floating investor, maybe restricted to ‘sophisticated investors’ and their financial vehicles, but an entity for whom shareholder capitalism describes the entire world. Here the firm’s managers, unavoidable hangovers from the earlier phases that presume real resources are being transformed into real profit in real markets, are now reframed as ‘the problem’.
The management theory implications of the fifth ‘casino capitalist’ phase are relatively under-explored (Sennett, 2006). The first phase sees the firm as a source of social goods and services including, of course, jobs, taxes and personal identity. Political and social reasoning dominates. The second phase sees the firm as a production function, the rational engine of profit and economic growth. The third and fourth phases shift the focus from the individual firm and its survival to the maximization and survival of (a) an economic aggregate such as a conglomerate versus (b) an investment portfolio, both phases accepting individual firms can be traded or broken up as their resources are reallocated in ‘industrial restructuring’ moves. Rationality and quantitative methods dominate the second, third and fourth phases. In the fifth phase the concept of the firm is altogether different, even when framed within a portfolio of business opportunities. The firm’s principal function is now to carry debt long enough for ‘trades of debt’ to be closed. The profit comes from selling debt, or acquiring and selling debt-bearing vehicles, and thereby ‘monetizing’ debt differences. Risk management is central because of the need to evaluate the ‘downside’ should the trade not close - but the deal is about managing debt not resources.

Firms are thus defined and evaluated in terms of the debt they can carry and the deal’s profit possibilities lie in the arbitrage opportunities created when potential owners differ in their perceptions of the firm as a debt-carrying vehicle. The firm’s owners P define the firm X by its capacity to carry debt $D_P$ while another potential owner Q, such as a hedge fund, thinks it can carry debt $D_Q$. The arbitrage opportunity is $(D_Q - D_P)$, monetized by selling X to Q. Of course Q only buys X because they believe it can be sold on to another owner R. The risk of buying X can be ‘hedged’ at cost $H$ so the yield is reduced to $(D_Q - D_P) - H$. At the same time, in the period while X is held, it might generate earnings of $E$, raising the deal’s yield to $[(D_Q - D_P) + (E-H)]$. In practice, restructuring of various types often extends both the earnings and the arbitrage opportunities. In current conditions we see many firms driven into extinction as they are passed from hand to hand, like a mountain mule being sold by one arrierro to another who then piles his own possessions atop the mule’s previous load. Eventually the mule stumbles to its knees and, pack and all, falls into the ravine where it is fodder for corpse-robbers.
and vultures. This may not work too well, but some theory of the fifth phase firm and of its management is vital if we are to help students understand this aspect of contemporary business reality, in part because so many are oriented towards it. There is also the intellectual challenge.

The institutions, politics and sociology of debt in the private sector are very different from those of resources or capital (Dienst, 2011). The urge to measure the firm’s capital better, given the gap between market and book values revealed by Tobin’s q, has led accountants to extend the notion of capital to embrace tacit knowledge and ‘human capital’ (Burton-Jones & Spender, 2011a, 2011b). The public sector gives private sector firms legal rights to acquire, trade and ‘own’ all manner of capitals, justified by the spillovers and economy-wide benefits flowing back into the public sector. Today’s institutional and legal arrangements give the entrepreneur and the shareholders rights to pursue profit. Given an efficient market for all the various capitals needed to bring the entrepreneur’s plans to fruition, the limits to the growth of capital are those of the entrepreneur’s capacity for hard work and imagination. Given also a reasonably functional political system governing the distribution of benefits, the more the entrepreneur’s enterprise is tested the better the public results. But it is rather different when it comes to debt, as both the US and Europe have been recently been reminded. The limit to debt lies in finding the last fool prepared to pay out capital to acquire a debt in the hope that it offers an arbitrage gain, and this lies in the imagination. The debt in the housing market ended up in the laps of the house-owners, who imagined being able to pay, as well as in those who imagined profit but were left holding the bag of worthless derivatives and other financial products when the music stopped. There are no physical, legal or institutional limits to debt, so the private sector has an in-built irresistible incentive to expand debt to and beyond its socially useful limits, so gaining short-term trading profits and pushing the extinction of the debt into the future. Managing capital is about the difficulties of quantifying resources that can be applied profitably to increase resources; its focus in on the world of experience. Managing debt lies in the world of the imagination and, as we know, is ever at risk to a confrontation with experience.
So, once again to the question in my essay’s title - the quants changed our world. What can we do about it? B Schools followed along as the world changed but for the most part passively without bothering or being able to theorize how those changes transformed the private sector firms that remained the integral elements of the economy, its micro foundation. So long as the firm retains this central place in our lives, so must management - and perhaps things are not as dire as I have suggested with my persistent remarks that we have no theory or body of heuristics to act as our touchstone and stabilize our curriculum and debate. If we abandon the search for a single totalizing theory of the firm as a relic of a Comtean positivist ideology that every other social science has long left behind, and embrace the notion of pluralism, our discipline’s historians have shown us the content of the curriculum - maybe not my five phases but something like them. We need to give students insight into the many faces of the private sector firm, just as in the elephant and blind men story - again. But the hard part is the same as what confronts historians, to find implications and connections that give us some grip on the present and its options. How might we do this?

Which gets us to methodology. Perhaps the quants’ greatest gift to management educators - as opposed to their many gifts to real managers - is to remind us that fetishizing any methodology, such as quantification, leads academics to abandon their defining position to generate knowledge by exercising the critical method. The university is distinct from everyday life precisely because it adopts this critical methodology in the pursuit of knowledge rather than the simpler pragmatism of acting in the pursuit of real-world goals. We often attribute the invention of the critical method to Bacon. But he was passing on the gifts of Islamic science, which was earlier able to escape the clutches of dogmatic interpretations of the Greek and Roman literature, especially of Aristotle, by institutionalizing criticism, especially that based on empirical evidence (Saliba, 2007). The sheer power - analytic and rhetorical - of quantitative methods now overshadows the other methodologies necessary to the growth of human knowledge. This is partly because we have let wither the theory and practice of criticism - our defining professional characteristic. Yet we know that no method can survive alone; every method works by rejecting some aspects of the phenomena being considered.
This rejection alone allows movement from the particularities of experience to the generalities of language. A fruitful interplay of methodologies is crucial to appreciating what we do and do not know and to expanding human knowledge. Simon, whose grasp of these matters was exceptionally sound, summed this up pithily, noting: "Reason, then, goes to work only after it has been supplied with a set of suitable inputs or premises" (Simon, 1983:7). Where are these to come from, and by using what method? Popper struggled equally with where hypotheses were to come from (Popper, 1968, 1969). We see the BSchool curriculum is either vocational training in some goal-directed practice, such as portfolio analysis or supply-chain design, or an academic activity that provides students with the capacity to critique those practices and thereby seek their improvement. Within a business school the faculty are in the same position, the curriculum displaying our goal-directed practice. We need to exercise our critical capabilities as much as we might try to awaken and exercise them in our students.

The MBA curriculum would then be a dynamic knowledge-generating apparatus of some complexity, threatening to overwhelm those with little tolerance for pluralism and inter-disciplinarity, calling for time and cost efficient analysis (satisficing) and the imaginative capabilities to synthesize the results into a communicable message - followed by an appropriate study of the nature and practice of rhetoric that will enable the students to comprehend leadership in the context of the private sector firm. This is not the same as being in a military situation, or even in the public eye. The theory of leadership turns out to be contingent on the implicit theory of the firm. The curriculum's outlines can be sketched as a matrix (Figure 3) that opens up a conceptual space in which synthesizing and choosing can take place as a human process, perhaps individual, perhaps collaborative. On one axis is 'content' - the actual things, names, entities, quantities, relationships, preferences, and so on that crowd into the manager's attention. The other axis is 'method'.
Within each content area - the consequence of paying attention to history as a way of categorizing the elements the MBA program should cover - a variety of research methods can be brought into play. We are in an era where we know that numbers are useful wherever they can be found, as the Kelvin quote suggests. But the quantitative methods touched on in this essay are both dependent on and complementary to the other methods we humans have of thinking about our situation in a disciplined manner - as the Knight riposte suggests. The current discussion of ‘qualitative methodologies’ may not exhaust the possibilities here (K. Locke, 2011; Rosanas, 2007; Thomas & Wilson, 2009, 2011; Van Maanen, 2011). My essay obviously gives historical methods their due and they are by no means easily captured in the ‘qualitative methods’ discussion offered in BSchools today. So I do no more than wave vaguely in the direction of those sociological, psychological, anthropological, historical, and so on methodologies that, for one reason or another, stand on grounds other than those on which quantitative methods stand. While quantitative methodologies take their presuppositions and axioms for granted, these are only useful and tenable when they are exposed to criticism. Ultimately the distinguishing mark of the academic is to have more than one method, for to have but one only is to be a purveyor of dogma, but with no less than two methodologies in hand criticism is possible. A handy definition of an intelligent person is one able to hold two or more contrary ideas in mind at the same time. Then the application of multiple methods means that conclusions

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Figure 3: Elements for a Comprehensive Pluralistic MBA Curriculum
require an act of synthesis - whether the researcher’s as s/he comes to a conceptual conclusion, or the manager’s as s/he arrives at a plan of action.

Given my assertion that the private sector firm’s historical phases are ‘layered’ on each other and persist beyond the time when they come into place for the first time, a further cycle of synthesis of these layers is necessary to grasp the operational nature of the firm. This is not unlike the synthesis of the physical, personal and social ‘sub-economies’ Barnard examined and considered the defining characteristic of executive work (Barnard, 1938:251; O’Connor, 2011). At the same time there are persistent dynamic tensions between the activities of each phase. One such is the pressure on managements to grow the firm, the pressure coming from shareholders anxious to see their stock rise. Another is the strategic question facing entrepreneurs; are they building a firm for the ‘long term’ or to treat the early stages of the firm as ‘proof of concept’ and cash out to Google or Pfizer? Are managers growing the firm to ensure its survival or to make it easier to put it ‘in play’?

My essay began by examining the nature and history of the quants’ impact. It helps illustrate how the BSchools and their curriculum have responded to the changing nature of private sector business over the last century. On the whole the BSchools’ responses have been passive. In particular this has allowed the components of the curriculum to drift apart into the well-guarded silos institutionalized into the distinct disciplines that characterize our profession of management education. But it allowed the most crucial of management’s contributions - action-oriented syntheses of available knowledge - to fall out of sight. This has to be seen as a crucial failing on our part, equivalent to graduating surgeons who have never experienced cutting or lawyers who have never argued. The work that managers must do to bring theory, heuristics and intuition into productive relationship with contextualized action and experience is now practically and conceptually ignored, in part because we academics do not have to do it in order to satisfy our professional obligations as researchers or teachers. We have to learn how to publish. This inconvenient truth becomes evident as we consider the impact of quantitative methods. If we then move along the trail Simon
indicated in his 1967 paper and make synthesis the nub of the MBA curriculum we can relocate it from being contextualized by disciplinary distinctions, as we insist today, and contextualize some other way. There are many alternative framings, history is just one. Each framing, of course, implies knowledge of the various methodologies that in that framing are the necessary complements to quantitative methods. Those arguing business has lost ‘trust’, and that its restoration must be the core of curriculum reform, put the analysis into a sociological frame. Those who see us submerged under ‘big data’, see the world in IT networked terms. Likewise those who cry the end of history or of democratic capitalism locate the debate in a different frame. Ultimately academic activity contributes to the world of real students and real managers by giving them the tools with which to escape from the absorbing and urgent ‘on-goingness’ of everyday to open up new possibilities through critique. If BSchools fail here, they fail most seriously.
Bibliography


