



Aaron Brown

The Inside Out Corporation

Keep your enemies close;
and your employees
closer ...

The central challenge of Economics is to take a set of resources, technologies and tastes; and organize an optimal allocation and distribution. The central challenge of Finance is to design tools so people can organize for themselves. There's a lot of overlap since almost all economic systems rely on some degree of individual choice. In my view the crucial distinction is success in Economics is measured by the overall satisfaction of society, whereas Finance declares victory if the user of the tool is satisfied. That's a more modest goal, but one which can be measured unambiguously, which is why Finance appeals to people who like to get things done today, and Economics appeals to people who like to argue about yesterday and tomorrow.

The first great tool of Finance is integrated money that serves simultaneously as medium of exchange, store of value and numeraire. This reduces the dimensionality of the problem individuals have to solve, and makes it linear. With good money, individuals only have to search for the combinations of inputs that produce an output at a net profit. As long as individuals have a list of prices for all possible inputs and outputs, they can make the best choice. The numeraire frees them from considering whether 10 lemons, a cup of sugar, two liters of water and half an hour of free time is better or worse than a pitcher of lemonade. They just add up the prices of the inputs and compare to the price of the output. A five-dimensional problem has been reduced to a



one-dimensional one. You also go from a non-linear problem (considering factors such as, "I only have five lemons, getting more requires a trip to the store") to a linear one in which all goods can be costlessly bought and sold in any quantity without affecting the price.

We had to make some crude assumptions for this analysis to work, which is why we don't use it for personal decisions, like whether or not to make a pitcher of lemonade. We also don't use it for very large decisions, when the influence of our decision on prices is significant. It works best for moderate scale problems involving moderately cooperative groups of people. Really cooperative people can do better in a family, kibbutz or team, uncooperative people will cause

the system to break down. But there are people in the world who we don't want as either teammates or enemies, and money helps us coordinate our actions with theirs to mutual benefit.

Another major reduction in dimensionality comes from the use of the numeraire as a medium of exchange. I don't have to consider whether I like what I produce. The money income I get from production is the constraint in optimizing my consumption. The more I make, the more I can spend. As long as I can sell my product for legal tender that can buy everything I want, the composition of my production basket and consumption basket can be independent.

Again, this simplification is not perfect,

which is why we still do some things for ourselves. But most of us spend significant fractions of our time making things we don't want, in order to get things we didn't make.

Finally, if the numeraire and medium of exchange is also a store of value, I can collapse the time dimension of the decision. Instead of matching production and consumption in each period, I can just worry about lifetime net present value. This assumes perfect fixed-income and actuarial capital markets, which is a bit more than just a store of value, but even the ability to store value, without borrowing, reduces the dimensionality of the problem considerably.

A reasonable facsimile of money combining all three elements appeared in Italy around the 12th century. It was based on precious metal, which had been used for millennia, but it added double-entry bookkeeping for a true numeraire and modern banking for a true store of value, and one that was not limited by the amount of physical precious metal available. About the same time, an anonymous Vatican lawyer came up with a way to circumscribe money's influence: the corporation. Within a corporation, work is organized without arms-length exchanges of money. Management can be hierarchical or cooperative or anything else, but it is based on the idea that everyone works together for the corporate good. Your motive for working for a corporation may be money, but your day to day work is coordinated by a boss or some other means, you're not paid by the task. Investors buy corporate securities to make money, but they hold indirect claims on the corporation's earnings and assets, corporate revenues do not go to them directly, and they do not own or control corporate assets.

On the other hand, the corporation's dealings with external parties are arms-length money transactions. It buys from suppliers and sells to customers, just like an individual. It also pays taxes (although typically according to different schedules than individuals), wins or pays judgments in civil court (rarely does it appear in criminal court), gives to charity and uses money in all the other usual ways. This gives the corporation the external efficiency of a profit-maximizing capitalist.

Corporations caught on immediately as the dominant legal form for true cooperative endeavors: towns, universities, monasteries and other non-profit entities. Attempts were frequently made to use the form for profit-making activities, but they always collapsed for the same reason. The people running the corporation made decisions for their own benefit, rather than for the corporation as a whole. This was also a problem for non-profit corporate entities, but the performance of these institutions is more public, and the stakeholders are more involved with the institutions, both of which serve to keep management tolerably honest.

The great age of for-profit corporations with dispersed public ownership began in the middle of the 19th century. For the first 50 years, it was limited almost exclusively to railroads and characterized by constant fraud and corruption. Over the next 50 years, from the record of these types of corporations is mixed and controversial. But by the 1970s, it was clear that their strengths

turned out there were many examples of this kind of organization. An obvious one is a home-building contractor. This person acts almost as an agent to suppliers of building materials, and an advisor to home buyers. But he farms out the actual work to subcontractors. He is a partner to his suppliers and customers, and an arms-length buyer of services to his employees.

A less obvious, but more intriguing, example is a professional sports team. The players' pay is tied closely to performance, with steep increases for small superiorities in performance. Yet players are expected to cooperate selflessly and efficiently with teammates, in fact sports are often used as the touchstone of teamwork. Teams cooperate with each other, in the sense of sharing revenue and having their economic values linked strongly. Yet players are expected to compete with other teams as aggressively as possible. This is interesting because it shows financial incentives are compatible with teamwork and sharing is compatible with competition.

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had become weaknesses. Eliminating financial incentives within the corporation was supposed to allow more flexible team organization with longer-term vision. Instead it resulted in rigid, inefficient, wasteful organizations. Acting like a profit maximizer externally was supposed to keep the corporation efficient. Instead, it led to supplier and customer mistreatment. People started turning their corporations inside out, using bonuses, stock and options to give direct financial incentives to employees, and treating suppliers and customers as partners rather than rivals.

Once people started thinking this way, it

Another interesting example is a traditional investment bank. Like professional sports teams, pay is linked tightly to performance, with big reward differentials for small performance differences. But the bank serves clients on both sides of transactions simultaneously. When underwriting securities, for example, the bank wants the highest sales price to serve the interests of the issuer, but also the lowest sales price to maximize the return to investors. Both issuers and investors are clients of the firm.

There were also existing examples of hybrid organizations. Franchise companies break up the large corporation into individual units that

are separately owned and operated businesses. W. L. Gore & Associates (best known for Gore-Tex fabric) has over 7,000 employees, but breaks them up into groups of no more than 150 to run separate operations in separate physical locations. Macolm Gladwell, in his fascinating book *The Tipping Point*, argues the reason is social. In groups of less than 150 everyone can really know everyone else, and true cooperation is possible. While that's possible, it seems to me more likely that the complex non-linearities of the business can be tackled on the 150-person scale, and at a

purest and perhaps the oldest, is the derivatives exchange. The exchange members spend the day trading with each other, intensely focused financial competition, with the most extreme swings of reward. External parties hire the exchange members as agents, a closely cooperative economic relation.

The existence of a derivative exchange allows external parties to linearize their decision problems with far more accuracy than money. Asset flows of different types, at different times, with different certainty, can be bought and sold to

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higher level, the groups collectively can be managed using simple monetary criteria like profit and loss.

This idea is familiar to people who do scientific programming. Some problems can be broken down into hard but manageable units, but reassembling the individual solutions to a global solution is simple. Other problems naturally require more complex disassembly, but the resulting units problems are very easy to solve. Often the same problem can be attacked profitably either way. Some economic problems can be solved by linking autonomous groups in a simple structure that can be mediated by arms-length money transactions. All the complexities that cannot be easily bought and sold for money can be isolated in the small groups. Other problems are better suited for more complex organization of simpler units. The

units do not act as profit maximizers within the organization, each one is given different types of resources and goals.

The most important example of an inside out corporation, also the

evaluate decisions precisely. The cost of this simplification is that the internal trading within the exchange becomes fantastically complex, probably chaotic. But this combination, a few people competing to work out a complex decision problem while most people cooperate and solve simple ones, seems to lead to a stronger and more dynamic economy than outside out corporations.

A dynamic economy needs a complex texture of organizations and links. Some tasks should be linearized and done as simply and efficiently as possible, others require complex, multidimensional thinking. We need barriers between the two types of processing. Simple organizations are destroyed by complex goals, they always offer an excuse for poor performance. Complex organizations fail if they are infected with simple, linear thinking. The corporation provided the cell wall for complex economic organisms to evolve, but to reach full potential some of them had to be turned inside out.

*Aaron Brown is an executive director at Morgan Stanley and head of Credit Risk Architecture. He serves on the GARP Editorial Board and wrote *The Poker Face of Wall Street* (John Wiley & Sons, 2006). The opinions expressed in this article are his own, they do not necessarily reflect the views of his employer or any other entity.*

