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Humankind cannot gain anything without first giving something in return. To obtain, something of equal value must be lost. That is Alchemy’s First Law of Equivalent Exchange.

—ALPHONSE ELRIC, *Fullmetal Alchemist*

The law of equivalent exchange might express a number of different basic beliefs we have about the world. As a Law of Alchemy, it expresses a scientific rationality—both the beauty of an ordered, knowable universe, and the sorrows of a world where not everything is possible. A world where there is final, permanent, and insoluble loss. As a moral law, it expresses an ideal of justice—both that none should benefit without having done something to deserve that benefit, and that no sacrifice should ever fail to receive some kind of compensation in return. A religious perspective binds these meanings together. In a world created by a just God, the world would work according to fair and knowable laws—both that we would know there is a price to be paid for our desires and sins, and that there are some things for which we must never strive. Things beyond the reach of humankind.

How are we meant to interpret the meaning of the law of Equivalent Exchange? As with any really interesting work of fiction, there are many ways, and we shouldn’t claim that there is a single right—or even a best—interpretation. But I’d like to speak of it as telling us something about our contemporary form of alchemy: 

Economics

Economics is a form of alchemy; it transforms goods into one another, and turns productive elements into gold. It dreams too of
the Philosopher’s Stone—a way of escaping equivalent exchange and creating profit. And it too has the same fundamental problem: How can you have a process that ends up with more than you started with? And the answer for economics is the same as it is in Fullmetal Alchemist: only by sacrificing human lives.

It’s Not a Miracle, It’s Science

In a basic alchemical transmutation all the parts there at the end must be present at the beginning; the change has to do simply with a useful reorganization of those parts. For example, when Alphonse fixes a radio in “Those Who Challenge the Sun,” he doesn’t create anything new, but only rearranges the parts so that it’s a working device again, instead of just a collection of detached radio parts.

This is basically the way that any artisan or craftsman creates value. The usefulness of something comes from both its raw materials and its organization, and neither is useful without the other. You can’t make soup out of a stone any more than you can squeeze blood from a turnip, but, on the other hand, a perfectly ripe and nutritious basket of berries is of no use to you until someone bothers to go into the forest and pick it. In the same way, it’s through taking some suitable raw material (cotton or wool, yes; dirt or milk, no and ew) and reorganizing it in a proper sort of way (yarning and weaving, yes; burning and shredding, no) that we get clothing. And it’s the same with all the basic goods of life: food, clothing, shelter, and so on.

Here, there is a kind of equivalent exchange—raw materials go into and are used in the finished product. There is, of course, another kind of equivalent exchange that takes place when the product is brought to market. The berries I gather can be traded for the clothing you’ve made. And in this, we both stand to gain, even though there is an equivalent exchange.

How is this possible? If I spend a full day gathering berries, a basket worth will have cost me less time to gather than it would cost you to do so yourself. By spending the day out there, the time spent per basket is far less, because I only have to walk there and back and find a good patch once. Similarly, each coat you make costs you less time than it would cost me to make my own, if you make many of them, get raw materials in bulk, and if I can be saved the expense and effort of getting a loom and learning how to do a good job of it.
And so, even with simple equivalent economic exchanges, there can be profit and improving standards of living, just through specialization and economies of scale. When we work on our own trades, and exchange products, we have more and better quality goods in our lives. Like alchemy, it seems almost like magic if you don’t understand it, but it’s a science, based on equivalent exchange.

**Turning Lead into Gold**

The Philosopher’s Stone, in the historical tradition of alchemy, was held to either allow the user to transform other metals into gold, or to grant immortality. Why these two very different things? The reason is simple: because they are not so different, really.

Gold was believed to be the purest of all metals, and was associated with the sun. To turn a base metal, such as lead, into gold was to make it pure and incorruptible—no longer subject to change and decay. So it made some sense that such an elixir would make the flesh pure and incorruptible as well, and thus save the alchemist from aging, decay, and death.

According to legend, Nicolas Flamel (born 1330, died 1418, or did he?) succeeded in both through his use of an ancient lost book that he gained possession of. In *Fullmetal Alchemist*, there are characters very similar to Nicolas Flamel and his wife Perenelle, who were—in some legends—believed to have escaped aging and death together through an elixir of life made using the Philosopher’s Stone. The couple in *Fullmetal Alchemist*, however, can only do so by taking the bodies of other people.

In economic terms, there is a similar connection between gold and eternal life—and one which involves the extension of the days we may spend upon the earth by gathering together and sacrificing human lives, just as in the case of the red stones or the Philosopher’s Stone itself.

**Gold and the Philosopher’s Stone**

Gold, or money more generally, is nothing but a distillate of lives lost. Eighteenth-century philosopher John Locke helps us see why in his *Second Treatise of Government*.

Locke argued that, as we are all equally descendents of Adam, God gave us all the world in common equally. This helped him
explain why it was wrong for kings and barons to own all the land in Europe, while everyone else owned none and had to serve these, their masters. The idea brings up a different problem, though: If God gave us all the world in common, then how is it that any of us ever gain the right to own anything? If God gave everything to all, how could I ever presume to call anything my own and not yours?

The answer is simple, although a little strange: While God gave us all the world in common, he gave us also each of our own bodies in particular. It cannot be doubted that I alone own my body, for without it I cannot (and would not) exist at all.¹ And so, whatever I mix my body with becomes mine, for my body is clearly mine alone. Now, when we produce goods of value, we take raw materials and reorganize it so that it is useful for human life. So when I weave cloth or gather berries, I mix myself, through my labor, with those goods given to us all in common. It is again equivalent exchange: I lose the hours of my life spent in labor, but I gain ownership over the valuable good made through those lost hours.

Through trade, as we mentioned before, it is possible for us to specialize and increase our productivity. If you produce clothes only, and I only pick berries (and someone else only makes automail, and so on) then we are each able to produce a particular good (item of clothing, basket of berries, automail leg) in less time than it would take someone else to make just one for themselves. If it takes you less time to make an item of clothing than it would take me, and if it takes me less time to pick a basket of berries than it would take you, then we actually have more time left in our days if we produce for each other and trade than we would if we made everything ourselves. And so, by specializing our labor and trading with each other, we can actually, in effect, extend our lives!

There is, though, a limit to how much of our lives we can transmute into luxury, wealth, and longevity, because there’s a natural limit to how much useful work we can do. There’s only so much clothing, and so many automail limbs that I need at a given time. If we imagine, as Locke suggested, a desert island where there is nothing of value except food, water, and simple clothing, we would see that this would result in a life where a few hours would

¹ At least, unless I have a blood seal.
be spent in the morning gathering provisions, and the rest of the
day spent in leisure. What other work is there to do? Gather more
food than you need for the day? There’s no point—it will go bad,
and you’ll have just as much spare time the next day to gather food
anyway.

With money, this changes. Money has no use, and never spoils.
As a result, I can never have too much money, or more money than
I can make use of. And so I can work all day if I choose, convert-
ing the hours of my life into wealth at an ever more efficient rate
as I work longer hours and more days.

With enough money, I can even employ others to work for me,
and, just as working long hours on a single task makes more effi-
cient production of individual goods, so too does employing many
people on a shared production process increase efficiency further.
By working on different parts of the production process, they can
specialize even further. And I don’t have to pay them back for
every bit of value they produce—they will agree to work if I pay
them only a bit more than what they need to survive from day to
day and month to month, especially if I happen to be the only
major employer in town, like Lieutenant Yoki and his coal mine in
“Be Thou for the People.” And so, money allows me to bind
together the hours of my life spent in labor, but money is also the
concrete residue left by distilling the lives of others spent in wage-
labor. If labor is necessary to the creation of goods and services of
value to human life, then money is nothing but the concrete form
of hours of labor already lost. In the alchemy of economics, money
is that most temporary and ever-passing thing—the hours we each
have to walk upon the earth—purified and made permanent and
undecaying, just like lead turned to pure and incorruptible gold.
But, like the creation of the red stones, there is a moral price to be
paid as well.

Money, Power, Corruption

Of course, another way of saying that I can never have too much
money is to say that I can never have enough money, and the
knowledge that wealth leads to corruption is as old as economics
itself.

Our word “economics” comes from the Greek oikonomikos, mea-
ning, more-or-less, “how to run a household.” For Aristotle, the
first person in the Western tradition to write about this systemati-
cally, running a household wasn’t about gaining wealth, but gaining virtue and happiness. Aristotle, ever a realist, recognized that it’s much easier to be a virtuous and happy person—to help others, for example—if you’re at reasonably well-off, or at least not poor. At the same time, though, he warned that wealth should never be pursued for its own sake.

Aristotle claimed that “there are two sorts of wealth-getting . . . one is a part of household management,” such as farming, fishing, or raising livestock, “the other is retail trade: the former is necessary and honorable, while that which consists in exchange is justly censured; for it is unnatural, and a mode by which men gain from one another.” The question, for him, is whether we understand that coins are not true wealth. He asks “how can that be wealth of which a man may have a great abundance and yet perish with hunger, like Midas in the fable, whose insatiable prayer turned everything that was set before him into gold?” True wealth is that kind of abundance that serves true human needs: the wealth of objects and tools, food and wine, land and honor. This is a human wealth; the kind of wealth which allows for human flourishing.

Those who mistake coin for true wealth live impoverished lives, for “the whole idea of their lives is that they ought either to increase their money without limit.” Aristotle believed that “the origin of this disposition in men is that they are intent upon living only, and not upon living well”—that is, living a balanced, healthy, and virtuous life—“and, as their desires are unlimited, they also desire that the means of gratifying them should be without limit.”

And so, from even the earliest thoughts about economics, it seems we’ve always recognized that money leads directly to corruption; that money pulls us towards greed, pride, sloth, envy, glutony, lust, and wrath. When do these deadly sins emerge from our simple use of money? Exactly when it happens in the world of *Fullmetal Alchemist*: when we attempt to create human value through economic exchange.

**Deadly Sins and Capital Vices**

In *Fullmetal Alchemist*, human alchemy is forbidden. When considering the horrifying abominations created through the attempts
at human alchemy, we might ask why it is forbidden. Aren’t the horror stories of those who have tried sufficient to teach alchemists that such things should never be attempted?

Of course this isn’t enough. Time and again, alchemists think they’ll be able to do it in just the right way, or perhaps they think that they—unlike those before them—will succeed because they are willing to make the massive sacrifices and pay the costs that others have refused to pay, or have tried to avoid. They believe this not because those others who tried were not brilliant, or unwilling to make sacrifices. They believe this because they are unwilling to give up the idea that their desires truly are beyond their reach. Because they are unwilling to accept limits placed on their desire. The result is bringing deadly sin into the world, in the form of homunculi. So too does economics bring vice and degradation into the world when it seeks to create or replace human value using mere coin and exchange.

The seven homunculi take their names from what are often called “the seven deadly sins,” or in the language of the great Catholic theologian, St. Thomas Aquinas, the seven “capital vices.” The word capital, Aquinas tells us, comes from the Latin caput, meaning “head,” the part of the body that controls and motivates the rest of the body. This is why these vices are called capital vices: they are the vices that motivate and drive us towards all lesser forms of sin and viciousness.³

Every sin, he tells us, has its root in the capital vice of Greed, and its beginning in the capital sin of Pride. Greed, the desire for money and material wealth, is called the root of all evil, for money is to sin as roots are to a tree: Greed provides food and support for the pursuit of all vice and sin. As Aquinas says, “by riches, man acquires the means of committing any sin whatever, and of sating his desire for any sin whatever, since money helps man to obtain all manner of temporal goods, according to Ecclesiastes 10:19: ‘All things obey money’” (Summa, I–II, Q. 84, p. 1).

And yet, though the root and means of sin are supplied through Greed, it is Pride that begins all movement towards sin. Pride is the self-interested desire to become something greater than one is, and is a sin and vice for it disparages what God has provided, seeking

³ Summa Theologica, I–II, Q. 84, iii. All Aquinas quotes are from the translation by the Fathers of the English Dominican Province.
always something greater for oneself—to serve oneself rather than serving God, and living by his will, and within the means he provides. Aquinas’s understanding of Pride as an unwillingness to accept limits is just the same turning away from God that the Ishbalans see in alchemy.

To seek money is to seek power for oneself over things and people, and to seek power for oneself is not far from pridefully standing against the will of God. Karl Marx, the great critic of capitalism, noted this well: “By possessing the property of buying everything, by possessing the property of appropriating all objects, money is thus the object of eminent possession. The universality of its property is the omnipotence of its being. It therefore functions as the almighty being” (Economic and Philosophic Manuscripts of 1844, p. 136.) As with Father Cornello’s deception of the desert city of Lior, there is a seductive but false divinity in the promise that, if you work hard and accept your place in society, you will be rewarded with the satisfaction of all your earthly desires. And what could be more prideful than the worship, possession, and service rendered to that earthly almighty being: money?

Marx also agrees with Aquinas in the claim that not only is money possessed of a false and earthly sort of almighty power, but it is also the root of vice. In the very next sentence, we read: “Money is the pimp between man’s need and the object, between his life and his means of life.” But worse yet, “that which mediates my life for me, also mediates the existence of other people for me. For me it is the other person.” This is human alchemy: money is the pimp that brings to me whatever I desire—and if what I desire is someone else; their time, effort, good opinion, work, or respect . . . well, money buys me all that as well.

**Human Alchemy**

As Marx claims, if I am lame, money buys me horse and carriage; if I am ugly, money makes me desirable; if I am stupid, money buys me advisors; and if I am dishonorable, money makes me honored nonetheless. If I wish a particular food, can’t money make it for me? If I don’t want to leave the house, can’t money have it delivered? He asks, “if money is the bond binding me to human life, binding society to me, binding me and nature and man, is not money the bond of all bonds? Can it not dissolve and bind all ties?
It is the true *agent of divorce* as well as the true *binding agent*—
the *galvano-chemical* power of Society*" (Economic and Philo-
sophic Manuscripts, p. 138).

Money transforms my deficiencies into fullnesses, my failings
into virtues. Money brings objects to meet and fuel my desires, and
brings other people to serve, honor, value, and praise me even as
I become ever less deserving of all of these things. Money—stored,
accumulated, dead labor; the red stones—is the Philosopher's
Stone, which allows me to perform human alchemy by controlling
and changing others, and to perform human alchemy by transmut-
ing myself as well.

Surely, money used merely as a means to transmute what I have
produced into a needful thing—used in the simple transmutation of
berries to clothing—does not have this dire effect. According to
Aristotle, Marx, and Aquinas as well, this only happens when
money comes to moderate relationships, not just between things,
but between people as well, and to govern our own self-regard and
happiness. In a society where all things are for sale and all people
strive and sell themselves for money, a society where money is
both our almighty earthly god and master, “visible divinity,” and
also “the common whore, the common pimp of peoples and
nations” (Karl Marx, Economic and Philosopihc Manuscripts, p.
138.)—in *that* kind of society, money becomes the means of
human alchemy. It’s no wonder that people who believe fervently
in the irreplaceable value of humanity—whether Ishbalan, Muslim,
Christian, Jewish, Socialist, or Humanist—find themselves troubled
by a society where our most fundamental relationships are deter-
mimed by market forces.

When we allow money to moderate the way that we think of
ourselves, we begin to steadily lose touch with our humanity. Like
Alphonse, whose bond to the world is through an alchemic seal
rather than a human body, our connections with others begin to
appear calculated rather than genuine, and we start to lose a sense
of purpose and meaning in our lives. (This is a threat to Alphonse
throughout the series, but “Heart of Steel” is where this comes out
most clearly.) Alchemy and economics, when allowed to determine
or define our human relationships, does not just threaten how we
think of ourselves and others, but how we treat them as well.
Whether, for example, we might come to think of others simply as
ingredients for our projects.
Usury and Human Ingredients

At the heart of capitalism is capital. Capital can be defined as money used to make more money, rather than money expended in purchasing objects of use to us. The consensus throughout most of history is that as soon as we use money to make more money, rather than expending money on human needs, we begin to exchange human value for profits, and to fall into the most loathsome and destructive sorts of sin. The clearest and simplest form of use of capital to extract profit from others is to charge interest on a loan. This act used to be known as usury.

Usury was not infrequently compared to robbery or murder, both in the severity and in the nature of its immorality. Writers including Aristotle, Cato, Cicero, Seneca, Plutarch, St. Basil, St. Ambrose, St. Jerome, St. Augustine, St. Thomas Aquinas, and Martin Luther have claimed that usury is a great moral wrong for a variety of different reasons, including that money should serve humanity, not humanity serve money; that it involved selling the time of human life; that it preyed upon the poor by making them pay more because of their poverty; that it was charging a price without providing a product; and that it was a form of dishonesty, for it made the recipient further impoverished while pretending to give aid. Protestant reformer John Calvin wrote that usury was “in the same rank of criminality” as murder, for the goal of both “is to suck the blood of other men” (Commentary on the Book of Psalms, p. 213). We may be beginning, today, to return to something like this view, after having seen how the great accumulation of wealth through usury in the form of no-income no-asset loans, credit-default swaps, and mortgage-backed securities has threatened to break the back of our global economy.

Usury makes dead labor—labor expended and bound alchemically into gold—the master of living men. It makes the borrower the servant of the dead. In this necrocracy, we see the epitome of human alchemy; the approach to human life as a resource to be used up in the service of gathering power; the use of human life—whether of the poor in the case of usury, or of prisoners in the case of the hidden Laboratory 5—to create artifacts of control and domination. And so, it is fitting that human alchemy should be both the origin and the goal of the homunculi.
Homunculi and the Deadly Sins

Homunculi have a human form, but no humanity. They are brought into the world when alchemy is used to realize human goal by going against human limitations. And in just the same way does our use of economics to attempt to replace human value bring the sins for which the homunculi are named into the world.

When we use humans in the service of economic value, rather than using money and profits to increase and realize human values, we quickly lose our humanity, becoming akin to homunculi. In business, we treat humans as mere commodities to be paid as little as possible and dismissed when profits can’t be further extracted from them. In love, we mistake purchases for affection. When our relationships take place in the context of greed and prideful, self-serving desires, the other capital vices are sure to be borne in the wake of our actions. Lust and Envy, Gluttony and Wrath, and Sloth as well—the vice closest to the Elric brothers.

Sloth is perhaps the least obvious of these capital vices. Why is Sloth a capital vice, and why is she the vice that the Elric brothers bring into the world with their forbidden act?

Sloth is not a mere laziness, or at least this is not the sense in which Sloth is a capital vice. As a capital vice, according to Aquinas in *Summa*, II–II, Q. 35, Sloth is a feeling of weariness when faced with the knowledge of how much work it is to do good in the world, and to act in a right manner. Sloth, then, is opposed not to activity or to liveliness, but to charity and care for others. And so Sloth is the servant of Pride, in life as in *Fullmetal Alchemist*, for both are self-interested and avoid and shirk the difficult work of living within the limits of an honest and virtuous life. And it is perhaps right that she should be the product of the Elric brothers’ action because they were unwilling to accept and take up the difficult burden that fate laid upon them.

While Greed is the root of evil, and Pride is the beginning of sin, Sloth is the attendant of all vice. It is Sloth that keeps us from taking the hard road and accepting the responsibility of treating others well and working within the limits we find ourselves in. Sloth is the dream of the quick fix, the get-rich-quick scheme, and the attempt to solve a human problem through technology. Along with Greed and Pride, she is the third of the most essential of the deadly sins of capitalism, and of all other forms of alchemy as well.
Equivalent Exchange

But the world isn’t perfect, and the law is incomplete. Equivalent exchange doesn’t encompass everything that goes on here. But I still choose to believe in its principle: that all things do come at a price; that there’s an ebb and a flow, a cycle. That the pain we went through did have a reward and that anyone who’s determined and perseveres will get something of value in return, even if it’s not what they expected. I don’t think of equivalent exchange as a law of the world anymore, I think of it as a promise between my brother and me; a promise that someday we’ll see each other again.

—ALPHONSE ELRIC, Fullmetal Alchemist

Simple economic equivalent exchange brings us eventually to great imbalance, loss, and injustice. Safety regulations are cheated—some estimates put the number of work-related deaths at one every five minutes in the United States alone. Children are hungry and cold in the same nation where others buy shower curtains made of gold and fifteen-thousand dollar umbrella stands. Free and fair equivalent economic exchange brings about conditions which are not fair, and in which we are not free. The reason is simple: in our world, unlike the Elric brothers’, we have allowed economic exchange to transmute human values; we have not adequately protected people’s freedom, opportunity, health, and welfare from the transmutations of markets and money. This is the “truth behind truths” of our economic structure: the power to profit without work and to purchase whatever is desired is able to disobey the law of equivalent exchange only because capital is built up by human sacrifice. The secret ingredient in capital is the same as that of the Philosopher’s Stone.

If the market will not make good on its promise of equivalent exchange, we too must come to treat it as an incomplete law, and we too must think of it as a promise that we must make to one another. A promise to respect each other, to be fair, to care for each other and strive for our common good. Most of all, a promise to oppose and always guard against Greed, Pride, and Sloth: a promise to be charitable and to accept that the hard work of helping others is our responsibility. In this way, we can strive, within a

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4 That’s Dennis Kozlowski. Google him! Of course, he’s only single famous example, but the ultra-rich make similarly outrageous choices all the time.
capitalist economy, to avoid the capital vices of the alchemy of money, and use our economic alchemy to support humans within humane limits, rather than to rage against those limits in a selfish, abusive, and exploitative manner.

Alchemist and capitalist both: Be Thou for the People.