

# The Scholastic Analysis of ZIRP: Justice, Usury, and the Zero Interest Rate Policy

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We evaluate the Zero Interest Rate Policy in light of the Scholastic teaching on usury. According to Scholastic analysis, interest rates are too low. While an unjustly high interest rate is an injustice against borrowers, an unjustly low interest rate is an injustice against lenders. The Zero Interest Rate Policy currently pursued by the Federal Reserve Bank is the opposite of usurious, in which interest rates do not sufficiently compensate lenders for the cost of inflation and the risk of default.

## Introduction

The Federal Reserve Bank has been pursuing a low interest rate policy since October 2008, first in hopes of mitigating the severity of the recession that began in December of that year and then later to help the economy recover from it. In 2012, the target Fed Funds rate was 25 basis points, which means that a \$1,000 loan between banks receives \$2.50 in interest per year. A central bank policy of maintaining interest rates at or close to zero is referred to as a *Zero Interest Rate Policy* or ZIRP. Policies similar to that of the Fed were pursued by the central bank of Japan in the 1990s.

Many financial commentators have been critical of the Zero Interest Rate Policy of the Fed in prudence, effectiveness, and fairness. While we will discuss many of these same issues here, this article differs from other analyses in that it evaluates the problem and these related issues in light of the Scholastic doctrine of usury, which is founded in the ethics of virtue.

I suppose some defense of the neglected Scholastic tradition is in order. It may help that John Maynard Keynes found some value in the tradition. Commenting on the Scholastic teaching on usury, he writes,

I was brought up to believe that the attitude of the Medieval Church to the rate of interest was inherently absurd, and that the subtle discussions aimed at distinguishing the return on money-loans from the return to active investment were merely Jesuitical attempts to find a practical escape from foolish theory. But I now read these discussions as an honest attempt to keep separate what the classical theory has inextricably confused together, namely, the rate of interest and the marginal efficiency of capital. For it now seems clear that the disquisitions of the schoolmen [Scholastics] were directed towards the elucidation of a formula which should allow the schedule of the marginal efficiency of capital to be high, whilst using rule and custom and the moral law to keep down the rate of interest.<sup>1</sup>

We should be careful to avoid interpreting this passage as unmitigated praise. As D. Stephen Long observes, “[Keynes] never analyzed the Scholastics work with any depth. His arguments were haphazard and employed merely for the sake of supporting his own position.”<sup>2</sup> Furthermore, Keynes’ praise of the Scholastics, while apparently sincere, is qualified by his inclusion of them among those who “preferred to see the truth obscurely and imperfectly.”<sup>3</sup>

Joseph Schumpeter found Scholastic analysis praiseworthy in its own right. Commenting on the changes within the Catholic Church of practices related to usury, Schumpeter writes,

[T]he question naturally arose ... whether in such circumstances [caused by interest becoming a normal phenomenon] an overadmitting set of rules, however correct logically, should not be replaced by admitting a sweeping presumption that the acceptance of a market rate of interest was all right. This really is all that a steadily increasing number of laical and clerical writers demanded. But they did not put it this way, partly because they were not able to understand the finely spun logic of the scholastics and therefore set it down as mere sophistry, and partly because, most of them being enemies of the Catholic Church or the late scholastic doctors for political and religious reasons, they could not bring themselves to argue the question of policy without sneers or invective. This created the impression that there was a battle between old and new *theoretical* principles which ... it seemed worth to dispel.<sup>4</sup>

This is high praise from one of the most eminent economists of the twentieth century.

Scholastic moral theology remains the moral teaching of the Catholic Church. Catholic social teaching, properly understood, is an application of Scholastic moral theology to contemporary social, economic, and political problems. Founded in the ethics of virtue, Scholastic doctrine provides the categories of moral analysis of the Catholic Church. The seven virtues are found in both classical philosophy and Scripture. The three theological virtues—faith, hope, and charity—are identified in the first letter of Paul to the Corinthians.<sup>5</sup> The four cardinal virtues—prudence, temperance, fortitude, and justice—are identified first in Plato’s *Protagoras*, then in Aristotle’s *Nicomachean Ethics*, and later in the Book of Wisdom.<sup>6</sup> The cardinal virtues are also referred to as “human virtues” in the Catechism of the Catholic Church.<sup>7</sup> The second part of St. Thomas’ *Summa Theologica*, which is the foundation of Scholastic theology, is organized according to the seven virtues. The particular virtue relevant to interest and usury is the virtue of justice.

## The Scholastic Teaching on Usury

The title of this article is a reference to *The Scholastic Analysis of Usury* by John T. Noonan, which provides a comprehensive survey of the development of the doctrine of usury in the Catholic Church. Noonan’s book, a first-rate work of scholarship, is used here as a point of reference for the Scholastic teaching on usury.

The last definitive statement of the teaching of usury is the encyclical letter *Vix Pervenit*, promulgated by Pope Benedict XIV in 1745. The teaching on usury is that there is no *intrinsic* title to a fee or interest on a loan. This means that, as a matter of justice, there is nothing for which the lender may demand compensation *on the basis of the loan itself*. However, there are *extrinsic* titles for which the lender may be compensated, and these extrinsic titles justify some compensation to the lender, either as fees or interest.

The basis of the teaching of usury is commutative justice, or “justice in exchange,” which is the part of justice that deals with transactions. Justice requires that each person give what is owed to another. Commutative justice requires that, in a transaction, the value of the goods exchanged between parties must be of equal value in the common estimation. In a loan, money is loaned and then repaid. The lender lends the loan, and the borrower repays the loan plus fees and interest. If the same value of money is lent and then repaid, what justifies the additional fees and interest due to the lender? The three extrinsic titles recognized in Scholastic teaching that justify additional compensation to the lender are the titles to *lucrum cessans* (“profit ceasing”), *damnum emergens* (“costs emerging”), and *periculum sortis* (“risk of the class”).

The concept of *lucrum cessans* in Scholastic theology is nearly indistinguishable from the concept of opportunity cost in neoclassical economic theory. The extrinsic title to *lucrum cessans* is the value of profit that a lender must forgo in order to lend. Historically, the lender would have to document the existence of such an opportunity in order to justify the claim to the title of *lucrum cessans*. However, this practice changed between 1822 and 1834, after which point lenders no longer needed to document the existence of a profitable alternative investment in order to claim the title.<sup>8</sup> Scholastics at the time understood the change in confessional practice as a response to the changing economic circumstances of the early nineteenth century, specifically the increase in profitable investment opportunities brought about by the Industrial Revolution.<sup>9</sup> In economics, *opportunity cost* of a loan is the value of the next best alternative that a lender must forgo in order to lend. The essential difference between the two concepts is that opportunity cost refers to the value of the next best alternative among *all* uses of money, whereas *lucrum cessans* refers to the next best alternative *investment*. *Lucrum cessans* does not traditionally consider the value of unprofitable or noninvestment alternatives.<sup>10</sup> For example, a lender who must give up a family vacation in order to lend money would not be entitled to *lucrum cessans* because a vacation is not an investment, despite the fact that the loss of the vacation may constitute a loss of some value to the lender.

The title to *damnum emergens* is the extrinsic title of the lender to be compensated for costs arising from the loan process. These costs include the real costs of running a bank or other financial institution as well as the cost of inflation. Compensation for the costs of lending included under the *damnum emergens* can be divided into inflation and other costs. Loans for which the lender is not compensated for inflation would not satisfy the requirement of commutative justice, as the money repaid would be less valuable than the money loaned. Other costs include the costs of running a bank or other financial institution but exclude expected costs related to the risk of default, which is compensated under the title to *periculum sortis*.

An interesting example of the recognition of the title to *damnum emergens* is given in the Fifth Lateran Council in May 1515. At that time, Montes Pietatis (Catholic credit organizations) were providing loans to the poor at modest interest rates so they would not be forced to turn to other lenders who charged much higher (usurious) rates of interest. The question before the council was whether by charging interest rates, however modest, the Montes Pietatis were guilty of usury. The Fathers of the Council declared that the Montes Pietatis could lawfully charge interest in order to “defray their expenses and by way of compensation” and that in doing so, such credit organizations “ought not, indeed, to be condemned

in any way. Rather, such a type of lending is meritorious and should be praised and approved. It certainly should not be considered as usurious.”<sup>11</sup>

The title to *periculum sortis* is compensation for risk of default. Specifically, *periculum sortis* is the risk borne by a lender who agrees to forgive the loan if the lender is unable to repay the loan.<sup>12</sup> The risk of default is a potential cost to the lender, for if the borrower defaults and declares bankruptcy, the lender could receive much less than he lent, and the debt may be discharged altogether, leaving the lender with nothing. The possibility of bankruptcy means that the lender must essentially insure the borrower against risk of default, and for this insurance the lender is entitled some additional compensation.

In evaluating the ethics of ZIRP, it is useful to ask: Is it possible that one of these titles—*lucrum cessans*, *damnum emergens*, or *periculum sortis*—could be negative? If this is so, then it is possible for the borrower to repay less than the full loan amount and still satisfy justice in some circumstances. When might this be possible? Consider first the title to *periculum sortis*.

Can the title to *periculum sortis* be negative? The risk of default is always present, and compensation for the risk of default is ordinarily calculated as an expected loss to the lender, that is, the probability of default multiplied by the loss in the event of default. Both the probability of default and the potential loss to the lender are positive terms, so compensation for *periculum sortis* must be greater than or equal to zero.

Can the title to *damnum emergens* be negative? The two parts of the *damnum emergens* are inflation and other costs. Other costs, which primarily include the costs of running a financial institution, are never negative, so this part of the *damnum emergens* must be greater than or equal to zero. Compensation for the cost of inflation is the only part of the *damnum emergens* that may be negative, and this is only so when there is deflation, not inflation. Inflation is a cost to the lender, whereas deflation is a cost to the borrower. Justice is satisfied when the real value of the loan repaid to the borrower is equal to the real value of the amount lent. With deflation, the dollars repaid are each worth more than what was borrowed, so fewer are owed. If deflation is sufficiently great, then the compensation for inflation is negative and could be larger in magnitude than the compensation due for other costs, in which case the title for *damnum emergens* is negative. The lender would be required to repay a smaller loan amount in nominal terms, but the real value of the repaid load would be equal to the value of the original loan plus the additional compensation to other costs, in addition to the other titles.

Can the title to *lucrum cessans* be negative? *Lucrum cessans* is the opportunity cost of the next best alternative investment—that is, the marginal investment—to the lender, which he must forgo in order to lend. In a recession, businesses

lose money and the number of profitable investment opportunities diminishes, so it is possible that the marginal investment may yield no profit to the lender. Investors, whether individuals or institutions, do not ordinarily invest unless the expected returns to their investment are positive; if the expected returns are zero or negative, they will ordinarily hold their money in reserve. Because neither investing nor lending is always a possibility, it would seem that the minimum title to *lucrum cessans* is close to zero. However, even not investing carries with it a slight risk, as money held in reserve is ordinarily deposited in a bank account, and deposits are only insured up to a limit. If the bank fails, then depositors lose all deposited money in excess of the limit. Bank failure is relatively unlikely, so the expected losses from not investing are ordinarily small, though the probability of a bank failure increases significantly in an economic downturn. It is possible and probable that many wealthy individuals and institutional depositors may find that investing or lending at a slight loss is better than not investing and accepting the risk of bank failure and the corresponding loss of uninsured deposits. This suggests that the title to *lucrum cessans* may be slightly negative under certain conditions. When these conditions obtain, a negative title to *lucrum cessans* could be understood as compensation due to the borrower for providing the lender with a relatively secure investment in which his losses are less than they would be otherwise.

The essential role that banks fill in the economy is to take capital from depositors and invest it profitably on their behalf. Interest expense is the share of revenue that goes to depositors. To whom belongs the compensation for the titles for *damnum emergens*, *periculum sortis*, and *lucrum cessans*? The bank or its depositors?

Because the depositors provide the capital, they should be compensated for the costs of inflation, by which their capital is depreciated. The loan is an asset of the bank, not of the depositor, and as a result, the bank bears nearly all of the risk of default. Compensation for the risk of default is primarily due to the bank. Depositors in the United States are typically insured, at least up to a certain amount, though uninsured deposits should receive some additional compensation for the additional risk of bank failure. Compensation for the other costs of running a bank is exclusively due to the bank. Bank deposits are physically protected by the bank and are far less vulnerable to theft than money kept in a home or other location. Thus some compensation due to the bank is for the provision of security services, though these costs are included as part of the costs of running the bank. Assuming other profitable opportunities exist in the economy, compensation for *lucrum cessans* is primarily due to the depositors, though some part should go to the bank to allow its owners to make an ordinary (risk-adjusted) rate of return

on their equity. The ordinary rate of return to invested capital is referred to as *normal profit* in economics.

### **Estimating the Titles to *Damnum Emergens*, *Periculum Sortis*, and *Lucrum Cessans***

Economic theory provides estimates for the compensation for inflation, risk of default, other costs, and risk-free returns. The present value of future payments of principal and interest are discounted using a discount factor. Let  $\delta$  be the discount factor for an interest-only loan  $L$  that pays annual interest payments of  $m$  beginning at time  $t = 1$ . Let  $i$  be the nominal interest rate, so  $m = iL$ . The loan is equal to the present value of the discounted future payments,

$$L = \delta m + \delta^2 m + \delta^3 m + \dots = \frac{\delta m}{1 - \delta} = \frac{\delta i L}{1 - \delta}$$

The discount rate that satisfies this equation is

$$\delta = \frac{1}{1 + i}$$

Let  $p$  be the probability of default in any time period,  $r$  be the risk-free rate of return in the economy, and  $\pi$  be the annual rate of inflation. With these parameters, the discount rate (or effective discount rate) is

$$\delta = \frac{1 - p}{(1 + r)(1 + \pi)}$$

The nominal interest rate must satisfy the relationship

$$\frac{1}{1 + i} = \frac{1 - p}{(1 + r)(1 + \pi)}$$

Solving this equation for  $i$  leads to the equation

$$i = \frac{1 + r + \pi + r\pi}{1 - p} - 1 = \frac{r + \pi + r\pi + p}{1 - p}$$

For small values of  $r$ ,  $\pi$ , and  $p$ , the nominal interest rate is approximately equal to

$$i \approx r + \pi + p$$

What about operating costs? A bank can finance operating costs and other costs either through fees paid at the time the loan is issued or through an increase in the interest rate. Let  $cL$  be the cost of issuing a loan, so  $c$  is the total cost as a percent of the loan. The principal of the loan from the lender's point of view is  $L(1 + c)$ . Assume the bank finances the costs of the loan through the interest rate, and let  $j$  be the effective rate of interest on the loan with costs, so

$$i = j(1 + c) = j + cj$$

Here  $j$  is the effective interest rate on  $L$ , and  $cj$  is part of the interest rate that is compensation for operating costs. Substituting this into the above equation and solving for  $j$  yields

$$j = \frac{r + \pi + r\pi + p}{(1 + c)(1 - p)}$$

Operating costs are then

$$cj = \frac{c}{(1 + c)} \frac{(r + \pi + r\pi + p)}{(1 - p)}$$

These equations decompose the nominal interest rate into the constituent parts corresponding to the *damnum emergens*, *periculum sortis*, and the *lucrum cessans*. The *lucrum cessans* is approximately equal to the risk-free rate of return

$$\frac{r + r\pi}{(1 + c)(1 - p)} \approx r$$

Compensation for *periculum sortis* is

$$\frac{p}{(1 + c)(1 - p)} \approx p$$

Fair compensation for risk of default is approximately equal to the probability of default. The *damnum emergens* can be decomposed into compensation for inflation and other costs. Compensation for inflation is

$$\frac{\pi}{(1 + c)(1 - p)} \approx \pi$$

Compensation for the other costs is

$$\frac{c(r + \pi + r\pi + p)}{(1 + c)(1 - p)} \approx c(r + \pi + p)$$

Fair compensation for inflation is approximately equal to the inflation rate. All approximations are close for rates of  $c$ ,  $r$ ,  $p$  and  $\pi$  relatively close to zero, that is, for rates less than 10 percent. Note that compensation for other costs is the product of cost times the sum of the other rates. Because  $c$  is a small percentage, compensation for other costs is typically an order of magnitude smaller than the other terms, for example,  $0.02 \cdot (0.01 + 0.03 + 0.01) = 0.001$ . Other costs are a relatively insignificant portion of the interest rate and can be ignored without significantly affecting the analysis.

The relationship between the nominal interest rate, the *damnum emergens*, *periculum sortis*, and the *lucrum cessans* is

$$i = \frac{\pi + c(r + \pi + r\pi + p)}{(1 + c)(1 - p)} + \frac{p}{(1 + c)(1 - p)} + \frac{r + r\pi}{(1 + c)(1 - p)}$$

An approximate relationship is

$$i \approx (\pi + c(r + \pi + p)) + p + r$$

Assuming negligible compensation for other costs, that is,  $c(r + \pi + p) \approx 0$ , a second approximation is

$$i \approx \pi + p + r$$

In each of these three equations, the first term is the *damnum emergens*, the second is the *periculum sortis*, and the third is the *lucrum cessans*. The third equation shows that compensation for the title to *damnum emergens* is approximately equal to the rate of inflation, *periculum sortis* is approximately equal to the probability of default, and *lucrum cessans* is approximately equal to the risk-free rate of return.

These equations are striking in that they relate the concepts of two very different schools of thought: The *damnum emergens*, *periculum sortis*, and *lucrum cessans* are categories from Scholastic theology, while the equations relating nominal interest rates to inflation, risk, other costs, and risk-free interest rates are from economic theory. These equations show the correspondence between the two schools of thought and suggest that they may be to some degree compatible. Scholastic theology provides a coherent ethical framework, and microeconomic theory provides essential tools of analysis, used here to estimate the answer to an ethical question, that is, compensation due to the lender in justice.

## Justice and the Zero Interest Rate Policy

Applying the categories of Scholastic analysis, Fed Funds rates and interest rates that have prevailed under the Fed's current zero interest rate policy are unjustly low. Interest rates should be considerably higher in order to satisfy the requirements of justice. This policy of unjustly low interest rates is the opposite of usury. While unjustly high interest rates constitute an injustice against the borrower, unjustly low interest rates are an injustice against the lender. The simple argument is that the interest rates on savings accounts and Fed Funds are insufficient to compensate depositors and lenders for the cost of inflation, much less any additional compensation for other costs or *lucrum cessans*.

The Fed Funds rate has been 25 basis points (0.25 percent) since the beginning of the recession in December 2008. Arguably, there are few profitable investment opportunities in a recession, so let us assume, perhaps generously, that there has been effectively no title to *lucrum cessans* since the beginning of the recession. Are 25 basis points sufficient to compensate lenders for the cost of lending?

The interest rate should be at least inflation plus fair compensation for the risk of default, even without any title to *lucrum cessans*. Inflation from July 2012 to July 2013 was 2.0 percent according to the Bureau of Labor Statistics (BLS). With the prevailing rate of inflation, the interest rate would have to be at least 2.0 percent just to compensate lenders for the cost of inflation alone. The interest rate would have to be greater than 2.0 percent, perhaps considerably greater, to compensate them for the additional risk of default, as well as the other costs of lending.

What is the actual risk of default? According to a report by Lender Processing Services, 7.03 percent of loans are delinquent in the United States, so the risk of default is considerable. Borrowers typically become delinquent before they default and not all borrowers default, so the real probability of default is less than the probability of delinquency, though the statistic is useful as an indicator of the scale of the problem. Similarly, the frequency of business failure could be used to estimate the risk to business lending, respectively. For interbank lending, an average 0.73 percent of banks failed every year for 2003–2011, though this statistic is considerably affected by the postrecession failure rates. The bank failure rate is 0.09 percent from 2003–2008, but it jumps to 1.99 percent from 2009–2011.

What is prevailing compensation for *lucrum cessans* under the zero interest rate policy? Because compensation for risk and costs is separately accounted for under the *damnum emergens* and *periculum sortis*, the *lucrum cessans* is the opportunity cost of a riskless investment. Typically the interest rate on Treasury bills issued by the US government is the reference point for the *nominal* risk-free

rate of return.<sup>13</sup> The *lucrum cessans* is the *real* risk-free rate of return, that is, the nominal return less compensation for risk, inflation, and other costs. An estimate of prevailing compensation for the title to *lucrum cessans* can be estimated by subtracting out the compensation for inflation and risk of default from the rate of return to an investment.

**Table 1**  
**Fed Funds Rate, Inflation, Risk, and Implied Returns, 2003–2011**

		<i>Damnum Emergens</i>	<i>Periculum Sortis</i>	<i>Implicit Lucrum Cessans</i>
Year	Effective Fed Funds Rate	Inflation Rate	Probability of Bank Failure	Implicit Risk-Free Rate of Return
	i	$\pi$	p	$r = i - \pi - p$
2003	1.13%	1.90%	0.04%	-0.81%
2004	1.35%	3.30%	0.05%	-2.00%
2005	3.21%	3.40%	0.00%	-0.19%
2006	4.96%	2.50%	0.00%	2.46%
2007	5.02%	4.10%	0.04%	0.88%
2008	1.93%	0.10%	0.42%	1.41%
2009	0.16%	2.70%	2.05%	-4.59%
2010	0.18%	1.50%	2.47%	-3.79%
2011	0.10%	3.00%	1.46%	-4.36%
2003–2008	2.93%	2.55%	0.09%	0.29%
2009–2011	0.15%	2.40%	1.99%	-4.24%
2003–2011	2.00%	2.50%	0.73%	-1.23%

Table 1 shows the effective Fed Funds rate, the inflation rate, the probability of bank failure, and the implied risk-free rate of return. The effective Fed Funds rate comes from Federal Reserve data,<sup>14</sup> and inflation is measured by the percent change in the Consumer Price Index (CPI), December to December.<sup>15</sup> The probability of bank failure is calculated from FDIC bank failure data by dividing the number of bank failures by the number of banks.<sup>16</sup> The implied risk-free rate of return is calculated by subtracting the inflation rate and the probability of bank failure from the effective Fed Funds rate. The bottom three rows show the average rates for 2003–2008, 2009–2011, and 2003–2011, respectively.

Table 1 shows the difference between the Fed's previous and current policies. While interest rates on savings accounts and Fed Funds were consistently low throughout the early 2000s, the Fed consistently raised the Fed Funds rate in line with inflation up until the recession began in December 2008. Insofar as inflation in the early 2000s was driven primarily by a housing bubble, it is not clear that the Fed could have anticipated the high rates of inflation at that time, and the cautious ratcheting up of interest rates may have been the prudent policy. However, since the Fed adopted the Zero Interest Rate Policy at the end of 2008, Fed Funds rates have not tracked inflation but have consistently remained below 25 basis points (0.25 percent).

Table 1 also shows a dramatic change in the implied risk-free rate of return before and after the Zero Interest Rate Policy. Before ZIRP, from 2003–2008, the implied risk-free rate of return was 0.29 percent. It varied considerably from year to year, but was close to zero and positive on average, consistent with the requirements of justice. After ZIRP, the implied risk-free rate of return is -4.24 percent on average. It is uniformly negative and large in magnitude, with less variability. (The standard deviation is 1.6 basis points before ZIRP and 0.4 basis points afterward.)

The Zero Interest Rate Policy is manifestly unjust. More importantly, the Federal Reserve Bank has control over two parts of this equation. First, through its open-market operations, the Fed has direct or nearly direct control over Fed Funds rates. This gives it indirect influence over all other rates in the market, with more influence over short-term rates—for example, commercial paper and savings account rates—and less influence over long-term rates. Second, the Fed ordinarily has significant, indirect influence over inflation rates, although considerably less since the beginning of the recession, which weakened the relationship between the money supply and the monetary base. Nonetheless, inflation rates have been steadily increasing under the Fed's policy of Quantitative Easing (QE). This inflation is part of a deliberate effort by the Fed to reflate asset prices and is an intended consequence of this policy.

The logic of the Fed's position is as follows: interest rates were lowered at the beginning of the recession to make capital available to businesses and entrepreneurs in order to encourage job creation and economic growth. However, in the current economic conditions, many banks are reluctant to lend and many businesses are unwilling to expand. The effect of ZIRP and Quantitative Easing is to lower interest rates and allow inflation rates to increase so there is a negative real return to not investing. The logic of this policy, in conjunction with prevailing federal regulatory policy, is to increase the costs of not investing instead of increasing the benefits to investing. This policy can only be effective

if the money an investor expects to lose by investing is less than the money he expects to lose by not investing.

## Consequences of ZIRP

When interest rates are unjustly low, borrowers pay too little interest and lenders receive too little compensation. This is a form of theft, in which lenders receive less from borrowers than what they are due. In the current arrangement, the Fed has control, directly or indirectly, over the interest rate and inflation and uses its market power in financial markets to force lenders to accept lower interest rates than they otherwise would. Furthermore, banking regulations require banks to hold a certain quantity of treasury securities and as low-risk or risk-free debt. In conjunction with the Fed's policies, these banking regulations give the Federal government control of the quantity of debt that must be purchased by banks and the price they will pay for that debt. The two parties to this transaction—the Federal government and the banking system—do not have equal bargaining power in the negotiation. Because of the market power of the Fed in financial markets, prevailing market interest rates cannot be interpreted as fair or just prices, which would be the case if financial markets were competitive.

What should the interest rate be? We have already demonstrated one way to answer that question, which is to add the rate of inflation to the probability of bank failure to get a minimum interest rate that would compensate the lender for inflation and risk of default. This minimum could be compared to the Fed Funds rate—considered the risk-free or at least minimal risk rate in the United States—and other interest rates can then be calculated relative to the Fed Funds rate. What would interest rates have been in the absence of the Zero Interest Rate Policy? An answer to this question would allow us to estimate the effects of ZIRP on interest rates and the costs of this policy to savers.

**Table 2**  
**Lost Interest to Savings Accounts under ZIRP, 2009–2011**

Year	Savings	ZIRP		Without ZIRP		Difference
		Savings Account Rate	Interest	Savings Account Rate	Interest	
	<i>billions</i>	%	<i>billions</i>	%	<i>billions</i>	<i>billions</i>
2009	\$5,093.3	1.49%	\$75.7	0.42%	\$21.5	-\$54.2
2010	\$5,704.6	0.97%	\$55.3	3.83%	\$218.3	\$163.0
2011	\$6,335.1	0.69%	\$43.8	3.20%	\$202.5	\$158.7
2009–2011			\$174.8		\$442.3	\$267.5
Average		1.05%		2.48%		1.43%

Table 2 shows an estimate of the cost to savers of lost interest on savings from the Fed’s Zero Interest Rate Policy. Total savings data is provided by the FRED Economic Data.<sup>17</sup> The average interest rate on savings accounts under ZIRP is calculated using Bank Reg Data.<sup>18</sup> Estimates of what the interest rate on savings accounts would have been without ZIRP are calculated as a regression of savings accounts rates on the lagged sum of inflation and default rates. Average interest rates on savings accounts were 1.05 percent from 2009–2011 but would have been 2.48 percent without ZIRP. Because of the lagged effects of the model, the actual savings account rate was higher in the early stages of the recession in 2009 than predicted. However, the Zero Interest Rate Policy cost savers \$163.0 billion in 2010 in lost interest payments and \$158.7 billion in 2011. The cumulative cost of ZIRP to savers (excluding interest on interest payments) is \$267.5 billion through 2011. Note that this analysis is simply a “back of the envelope” calculation to facilitate discussion and not intended as a substitute for a formal econometric model of the relationships between interest rates and financial markets.

The estimate of \$267.5 billion in lost interest on savings underestimates the true cost of ZIRP to lenders. This calculation only includes interest paid on savings lent through the banking system, and it takes savings as a given and does not account for the additional savings that may have been saved had interest rates been higher. Most importantly, this estimate does not include interest payments on bonds or other lending instruments purchased directly by consumers or businesses through nonbank financial institutions. Interest rates on these financial instruments—especially on short-term debt—would have been higher in the absence of ZIRP. The size of the US bond market, including both short- and

long-term bonds, is between \$30 and \$35 trillion dollars. With this estimate, ZIRP costs bond holders between \$300 and \$350 billion per year for every one percent reduction in interest rate (averaged across all maturities). This larger estimate of \$300 to \$350 billion in lost interest is comparable in magnitude to estimates from other writers. Ira Stoll, for example, reports that interest income to savers was \$384.5 billion less in 2011 than it was in 2008.<sup>19</sup>

Who pays the cost of ZIRP? Young households are affected by the policy two ways: they receive low interest on their savings, making it difficult to save for cars, houses, retirement, or other expenses, but they also benefit by being able to borrow at low interest rates. Their assets generate lower returns, but their liabilities—mortgages, student loans, and other loans—have lower costs as well, although the capital requirements on mortgages may prevent many young households from taking advantage of low interest rates. Households with negative equity cannot ordinarily refinance their mortgages, for example. The net effects of the Zero Interest Rate Policy on young households will tend to depend on the net equity of households, with net borrowers more likely being net beneficiaries.

The Zero Interest Rate Policy tends to have a harsher effect on older retired households, for whom the policy tends to have a net cost. At retirement, many of these households have accumulated a lifetime of savings and investment and have paid off their mortgages. They can no longer take advantage of low interest rates by refinancing their homes, and usually shift their investments into fixed-income securities to finance their retirement and live off the interest payments, in addition to Social Security and Medicare. The lower interest rates mean that these households have had a reduction in their monthly interest rate income, lowering their standard of living and making them more dependent on Social Security and Medicare to finance their retirement. Households close to retirement will tend to delay their retirement as they find that their savings will not generate the income they expected.

Who are the beneficiaries of ZIRP? The Zero Interest Rate Policy punishes savers and rewards borrowers. Investors—especially speculators—and the Federal government are two clear beneficiaries of the Zero Interest Rate Policy.

The benefit to investors is one of the justifications for the Zero Interest-Rate Policy. Faced with lower interest rates, investors can more easily acquire the necessary capital to expand existing businesses or create new ones. At the margin, investors are encouraged to pursue business opportunities that may not be financially viable with a higher cost of capital. While these effects are real, such policies are always limited in their effectiveness during a recession, as investors face weakening demand from consumers with less disposable income. Thus, as ZIRP lowers the capital costs, the recession lowers the revenue expectations of

businesses at the same time, so investors may still be hesitant to invest in business expansion. Monetary policy has famously been compared to “pushing on a string.”<sup>20</sup>

Speculators are one group of investors that benefit from low interest rates. Speculators are often distinguished from other investors by an emphasis on short-term gains, usually through buying and selling securities. With interest rates close to zero, speculators can borrow a large amount of capital at almost no cost to invest in securities that have any positive expected return. These incentives are exacerbated by the precedent set by the bailout: speculators—a group that includes some large financial institutions—can borrow at almost no cost to gamble on risky investments with high potential returns, with their losses subsidized by the taxpayers if the gamble does not pay off. There is some concern that the Fed is deliberately encouraging speculation in the hopes that the demand from these speculators will help reflate asset prices.

The largest beneficiary is undoubtedly the Federal government, which is able to continue borrowing money through the banking system and financing its debt and spending at interest rates below what they would otherwise be. In 2012, the Federal government paid \$359.7 billion in interest<sup>21</sup> on \$15.8 trillion of debt, for an average interest rate of 2.3 percent. As of May 2012, the average maturity on this is 63.9 months,<sup>22</sup> so most of this debt will roll over in about five years. The Federal government saves \$158 billion in annual interest rate expenses for every 1 percent that the Fed can lower the interest rate. Notwithstanding the increased risk of default, the Fed Funds rate would have to have been 2.4 percent higher for 2009–2011 to compensate lenders for costs of inflation alone (see table 1). This suggests that ZIRP saved the Federal government from at least \$379.2 billion in interest rate payments annually, as interest rates on Federal debt tend to move with the Fed Funds rate.

The foregoing analysis indicates the tremendous interest rate risk faced by the Federal government. If the Federal Reserve Bank abandons its Zero Interest Rate Policy or is no longer able to maintain it, then interest rates would be expected to return to a level at least sufficient to compensate lenders for the costs of inflation and default. As the debt rolls over, annual interest expenses of the US government could more than double within five years, from \$354.7 billion in 2012 to \$733.9 billion. At this level, interest expenses would be comparable to current expenditures on Social Security (~\$800 billion) and defense (~\$770 billion) and greater than current expenditures on Medicare (~\$590 billion).<sup>23</sup>

The Zero Interest Rate Policy also represents a serious risk to the banking industry. As a consequence of the Zero Interest Rate Policy, mortgage rates on thirty-year mortgages are now below 3.5 percent. When this policy is eventually

abandoned, interest rates will begin to rise. Interest revenue to banks from mortgages will be fixed at their current low levels, but their expenses will rise as they will have to pay more interest on deposits. Squeezed by low revenue and rising expenses, many banks and other financial institutions could become insolvent. The recipe of high short-term rates after a period of low long-term rates is what led to the Savings and Loan Crisis of the 1980s and 1990s.

## Conclusion

This analysis reveals a remarkable correspondence between Scholastic moral theology and neoclassical economics. The Scholastic doctrine on usury requires lenders to be compensated for the costs and risk associated with lending and the opportunity costs of forgone investments. Neoclassical economics theory shows that the interest rate is approximately equal to the sum of the inflation rate (*damnum emergens*), the probability of default (*periculum sortis*), and the risk-free rate of return (*lucrum cessans*).

Interest rates are too low, and, as a matter of justice, they should be raised. The prevailing interest rates under the Zero Interest Rate Policy are insufficient to compensate lenders for the cost of inflation and the risk of default. Unjustly low interest rates are a form of theft, in which lenders receive less compensation from borrowers than what they are due. The victims of theft are savers and the beneficiaries are borrowers. Older retired households are harshly affected by the Zero Interest Rate Policy, as their interest-rate income has fallen significantly and they have had to become more dependent on Social Security and Medicare for their retirement. The largest beneficiary of ZIRP is the Federal government, which is able to finance its debt and spending at interest rates below what they would otherwise be. If the Federal Reserve Bank abandons its zero interest-rate or is no longer able to maintain it, annual interest expenses of the US government would have to more than double in order to compensate lenders for the costs of inflation alone.

## Appendix A1

### Predicted Savings Accounts Rates without ZIRP

**Table A1**  
**Savings Account Rate Regression Model**

<i>Variable</i>	<i>Coefficient</i>	<i>Std Err</i>	<i>t-stat</i>	<i>p-value</i>	<i>Conf. Interval</i>
L.x: Lagged sum of $\pi$ and $p$	0.806	0.137	5.870	0.004	0.425 1.187
Generalized $R^2$	0.046				
Observations	5				
Root MSE	0.0097				

Table A1 shows the results of the regression of savings account rates,  $y$ , on the lagged sum of inflation and the probability of bank failure,  $L.x$ . This model is used to predict what savings accounts rates would be in the absence of ZIRP. The regression is estimated with the annual data on savings accounts rates, from 2003 to 2008. The constant is assumed to be zero, that is, if inflation and the probability of default are zero, then the interest rate on savings accounts would also be zero. This is equivalent to assuming that the real risk-free rate of return is zero in equilibrium. Because the constant is omitted in the regression, the generalized  $R^2$  is used instead of the ordinary  $R^2$ . The generalized  $R^2$  is calculated as the square of the correlation between the predicted and actual savings account rates, that is,  $Gen R2 = [corr(y, \hat{y})]^2$ . The correlation between predicted and actual savings account rates is 0.215 for the years 2003–2008. Predicted interest rates on savings accounts are given in table A2.

**Table A2**  
**Predicted Savings Account Rates without ZIRP**

<i>Year</i>	<i>Lagged <math>\pi</math></i>	<i>Lagged <math>p</math></i>	<i>Lagged <math>x</math></i>	<i>Predicted Savings Account Rate</i>
2009	0.10%	0.42%	0.52%	0.42%
2010	2.70%	2.05%	4.75%	3.83%
2011	1.50%	2.47%	3.97%	3.20%

## Notes

1. John Maynard Keynes, *The General Theory of Employment, Interest, and Money* (New York: Harcourt Brace Jovanovich, 1964), 351–52.
2. D. Stephen Long, “Bernard Dempsey’s Theological Economics: Usury, Profit, and Human Fulfillment,” *Theological Studies* 57 (1996): 697.
3. Keynes, *General Theory*, 371.
4. Joseph Schumpeter, *History of Economic Analysis* (London: Routledge, 1997), 107.
5. “Meanwhile, faith, hope and charity persist, all three; but the greatest of them all is charity” (1 Cor. 13:13, Knox translation).
6. “If thy desire be for honest living, man’s excellences are the fruit she labours to produce; temperance and prudence she teaches, justice and fortitude, and what in life avails man more?” (Ws 8:7, Knox translation).
7. *Catechism of the Catholic Church*, §§ 1804–1811.
8. Penitents who charged interest without documenting profitable opportunities would have to return the interest before they would be absolved in the confessional. The decrees that changed the confessional practice are described in Noonan, *Scholastic Analysis of Usury*, 378–81.
9. Noonan, *Scholastic Analysis of Usury*, 377.
10. We emphasize here that this is the traditional understanding. Whether the concept of *lucrum cessans* could be interpreted to be coextensive with the concept of opportunity cost is an open question.
11. Fifth Lateran Council, Session 10, May 1515, accessed October 28, 2012, <http://www.papalencyclicals.net/Councils/ecum18.htm>.
12. See Noonan, *Scholastic Analysis of Usury*, 129. Risk borne by a lender who does not agree to forgive the loan is referred to as *periculum mutui* and is not recognized as a valid title. However, because most borrowers have the possibility of forcing lenders to forgive the debt in bankruptcy, most loans entitle lenders to *periculum sortis*—student loans being an important exception.
13. Short-term debt is defined to be debt instruments with maturities less than one year.
14. FRED Economic Data, <http://research.stlouisfed.org/fred2/series/FEDFUNDS>.
15. Bureau of Labor Statistics, <http://www.bls.gov/>.
16. FDIC Failed Bank List, <http://www.fdic.gov/bank/individual/failed/banklist.html>.
17. FRED Economic Data, <http://research.stlouisfed.org/fred2/series/WSAVNS>.

18. Bank Reg Data, <http://www.bankregdata.com/main.asp>.
19. Ira Stoll, “Bernanke’s Zero Interest Rate Policy Turns Out to Have a Big Hidden Cost to U.S. Savers,” *New York Sun*, March 12, 2012. Using historical interest rates, ZeroHedge, a prominent financial blog, estimates that the Fed’s easy money policies from 2002 to 2004 plus ZIRP have had a cumulative cost to savers of \$10.8 trillion from 2001 to 2013. Tyler Durden, “Savers and the ‘Real’ \$10.8 Trillion Cost of ZIRP,” ZeroHedge, July 17, 2013, <http://www.zerohedge.com/news/2013-07-17/savers-and-real-108-trillion-cost-zirp>.
20. Often attributed to John Maynard Keynes, this quote is actually derived from an exchange between Congressman T. Alan Goldsborough and Governor Mariner Eccles’ during the congressional hearings on the Banking Act of 1935. See Roger J. Sandilands, “The New Deal and ‘Domesticated Keynesianism’ in America,” in *Economist with a Public Purpose: Essays in Honour of John Kenneth Galbraith*, ed. Michael Keaney (London, UK: Routledge, 2001), 219–46.
21. “Interest Expense on the Debt Outstanding,” Treasury Direct, accessed October 29, 2013, [http://www.treasurydirect.gov/govt/reports/ir/ir\\_expense.htm](http://www.treasurydirect.gov/govt/reports/ir/ir_expense.htm).
22. “Chart of the Day: Lengthening the Average Maturity of Outstanding Treasury Securities,” U.S. Department of the Treasury, June 11, 2012, accessed February 7, 2013, <http://www.treasury.gov/connect/blog/Pages/Chart-of-the-Day-Lengthening-the-Average-Maturity-of-Outstanding-Treasury-Securities-.aspx>.
23. FRED Economic Data, accessed March 4, 2014, <http://www.research.stlouisfed.org/>. Data are 2013 averages.