Reconsidering Interest and Lending in a World with Negative Interest Rates

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ABSTRACT: Interest rates have been around since the times of the Bible. In fact, the Bible says quite a bit about interest. Interest rates have been the focus of serious academic study since the Great Depression. Embedded in both the Bible and the academic study of interest has been the implied assumption that interest rates are positive. This paper considers biblical and academic interpretations of interest and reflects on the current interest rate environment where negative interest rates are becoming more prevalent.

INTRODUCTION

Luke 6:34-35 (NIV):

> [34] And if you lend to those from whom you expect repayment, what credit is that to you? Even sinners lend to sinners, expecting to be repaid in full. [35] But love your enemies, do good to them, and lend to them without expecting to get anything back. Then your reward will be great, and you will be children of the Most High, because he is kind to the ungrateful and wicked.

It is hard to imagine a world where lenders would not expect repayment. Harder still to imagine a world where a borrower could be paid to take out a loan with a negative interest rate. Financial markets in today's world have evolved a great deal since biblical times and con-tinue to evolve in ways that enable more and more people access to credit (e.g. microfinance) and equity capital (e.g. gofundme.com). Green, Schuh, and Stavins (2016) report that over 72.1% of consumers use a credit card or charge card to finance purchases (p. 18). When credit card pur-chases are not paid in full before the due date, the balance is subject to an interest charge. Green, Schuh and Stavins (2016) report that 41.6% of consumers carry credit card balances and pay interest (p. 18). Similarly, it is common for businesses and corporations to use debt as a source of capital to fund new projects. According to the Federal Reserve Bank of St. Louis (2016), the total amount of outstanding corporate debt in the United States is $717 billion. In the United States, the interest expense on corporate debt receives favorable tax treatment relative to equity as a source of financing. The interest expense is the cost of using debt as a source of financing. It is common for a financial economist to use the terms "rate of return" and "interest rate" interchangeably. Van Drunen (2014) uses "interest rate" to "denote the more general concept that two parties to a financial instrument anticipate a rate of return for sharing resources over time" (p. 31). While the Bible does not specifically reference "rate of return," it does have a lot to say on interest and lending.

Biblical perspectives from both the Old Testament and the New Testament on interest and lending will be the topic of the first section of this paper. The love of money, interest, and dishonest gain can be a root of evil (1 Timothy 6:10), but, money, interest and economic growth can also be mechanisms for good works. Embedded in most studies on money and interest is the implied assumption that interest rates are positive. The second section of the paper will explore the relatively new concept of negative nominal interest rates. Negative interest rates are becoming more common. Tokic (2016) points out that "as of mid-2016, the government bonds reflecting about one-third of global economy had negative nominal interest rates (the Euro area, Japan, Sweden, Denmark, and Switzerland)" (p. 243). The third section will suggest questions and areas for further research. The final section will offer a conclusion.

BIBLICAL PERSPECTIVES

Proverbs 22:7 (NIV):

"The rich rule over the poor, and the borrower is slave to the lender."

It can be argued that the love of money, interest, and dishonest gain can be a root of evil (1 Timothy 6:10) and charging interest can be a means for the rich to rule over the poor. Is interest simply a means to enable the rich to get richer at the expense of the poor? The Bible provides many passages related to lending to the poor and needy (Exodus 22:25-27, Leviticus 25:35-37, Psalm 15:5, Proverbs 19:17, Proverbs 28:8, Ezekiel 22:12-13). The Bible provides guidance on the process for forgiving debts (Deuteronomy 15:1-11, Matthew 6:12). The Bible discusses how fellow Israelites should be treated in times of need (Deuteronomy 23:19-20, Nehemiah 5:1-13) and provides multiple examples of righteous generosity (Deuteronomy 24:10-13, Psalm 37:21&26, Psalm 112:5, Ezekiel 18:5-17, Matthew 5:42). Table 1 shows the section title and translations for Exodus 22:25-27 using four different translation approaches: word-for-word (King James Version, KJV), balance between word-for-word and thought-for-thought (New International Version, NIV), thought-for-thought (New Living Translation, NLT), and paraphrase (The Message, MSG).

Out of all of these biblical perspectives, two schools of thought have emerged: prohibition of all interest and exceptions to the prohibition of interest (i.e. post-sixteenth century view). According to the prohibition of all interest school of thought, interest is not to be collected regardless of circumstance and the prohibition of interest applies to all loans within an economy (Ballard, 1994; Mills, 1989; Mills, 1996). The exception to the prohibition of interest school of thought has two parts. Part one of the exception school of thought holds that when lending to those in need, a gift is preferred. Amerding (2001) points out that "God is seen as one whose loans are often indistinguishable from gifts" (p. 153). If lending is necessary, no interest should be charged. The study note in the 1985 NIV Study Bible for Leviticus 25:36 states that the main idea "was not necessarily to forbid all interest, but to assist the poor. The law did not forbid lending so much as it encouraged giving" (p. 180). Part two of the exception school of thought holds that if lending is for productive purposes (economic growth), then interest is not prohibited (Van Drunen, 2014; Wong & Richards, 2014;

Table 1: Translations of Exodus 22:25-27

KJV	NIV	NLT	MSG
	Social Responsibility	Social Responsibility	
25 If thou lend money to any of my people that is poor by thee, thou shalt not be to him as an usurer, neither shalt thou lay upon him usury. 26 If thou at all take thy neighbour's raiment to pledge, thou shalt deliver it unto him by that the sun goeth down: 27 For that is his covering only, it is his raiment for his skin: wherein shall he sleep? and it shall come to pass, when he crieth unto me, that I will hear; for I am gracious.	25 If you lend money to one of my people among you who is needy, do not treat it like a business deal; charge no interest. 26 If you take your neighbor's cloak as a pledge, return it by sunset, 27 because that cloak is the only covering your neighbor has. What else can they sleep in? When they cry out to me, I will hear, for I am compassionate.	25 "If you lend money to any of my people who are in need, do not charge interest as a money lender would. 26 If you take your neighbor's cloak as security for a loan, you must return it before sunset. 27 This coat may be the only blanket your neighbor has. How can a person sleep without it? If you do not return it and your neighbor cries out to me for help, then I will hear, for I am merciful.	25 "If you lend money to my people, to any of the down-and-out among you, don't come down hard on them and gouge them with interest. 26-27 "If you take your neighbor's coat as security, give it back before nightfall; it may be your neighbor's only covering—what else does the person have to sleep in? And if I hear the neighbor crying out from the cold, I'll step in—I'm compassionate.

Biddle 2001; Elder, 1999). Using the exceptions school of thought, it is unclear how some loans should be characterized (e.g. a mortgage loan). However, the basic tenet of the exceptions school of thought is that many modern types of loans were not in existence in biblical times and thus were not included in any prohibition of interest.

Prohibition of All Interest

Leviticus 25:35-37:

> 35 If any of your fellow Israelites become poor and are unable to support themselves among you, help them as you would a foreigner and stranger, so they can continue to live among you. 36 Do not take interest or any profit from them, but fear your God, so that they may continue to live among you. 37 You must not lend them money at interest or sell them food at a profit."

The above passage from Leviticus specifically mentions the poor as the focus in the prohibition of interest. In biblical times, money was considered to be sterile and unproductive. The primary view of the economy was that of a limited good or zero-sum game (meaning, if one person accumulated more wealth it came at the expense of someone else). Charging interest was seen as a sin and a perversion of the natural order of things. Some continue to believe that the "injunctions of the Old Testament law are binding on all Christians at all times" (Mills, 1989, p. 27) and that "not lending money (or anything else) at interest is a biblical doctrine" to be followed in any economic context (Ballard, 1994, p. 210). Mills (1989) argues that "the institution of interest is morally wrong and destructive of the economic paradigm that the Bible sets out" (p. 1). In light of the global financial crisis of the 2008, Meeks suggests that the church "critically retrieve" the traditional (pre-sixteenth century) view of usury as a "contribution to the public discourse about the oppressive use of interest and debt" (Meeks, p. 128).

One might wonder if loans and interest are not consistent with the Bible, then how should an entrepreneur go about financing a new productivity-enhancing project and how should one go about saving for future consumption? Mills (1989) suggests that Scripture sees "little to object in charging for the use of property" (p. 32). Others have identified inconsistencies with the lack of concern for charging for the use of property relative to the sinfulness of lending. Wong & Richards (2014) write that "Calvin likened interest to the payment of rent for the use of land" (p. 388). Beed and Beed (2014) point out that:

> It is a fine point whether rental income differs substantively from interest. This would be in the sense that I could 'rent' you my money for a fee (interest). Why is it okay for me to rent you my $20,000 car for $50 a day but not my $20,000 for $50 a day? (p. 83)

Mills (1989) believes that commercial investment should be financed through partnerships, "combining both equity ownership of money capital with a profit-share basis for remuneration" (p. 33). When comparing partnerships with commercial loans, Mills seems to imply that a lender does not bear any risk of getting paid back and thus interest is "morally evil" (p. 27). Some concerns with this type of comparison are that there does not seem to be consideration given to differences in the time horizons between savers and investors or to the lack of liquidity with a partnership stake relative to a short-term loan.

Exceptions to the Prohibition of Interest

Deuteronomy 23:20 (NIV):

> You may charge a foreigner interest, but not a fellow Israelite, so that the LORD your God may bless you in everything you put your hand to in the land you are entering to possess.

In Deuteronomy 23:20 we see that charging interest is allowed when lending to a foreigner. Lending contracts with foreigners were similar to business contracts. Coincident with the development of capitalism, the Protestant reformation in the 1500s began to establish faith perspectives that allowed for interest in certain types of loans (e.g. a business deal). In the seventeenth century, with "the rise of financial markets and large-scale production, new doctrines about the selling of money replaced the church doctrines" (Meeks, 2011, p. 130). Valeri (2011) explains how Tillotson, Anglican moralists in London, Dutch reformed ministers, French Calvinists, and Puritan preachers in the United States all came to the conclusion that usury was no longer a sin in the long distance trading economy that developed in the late seventeenth century. The meaning of money had changed from a "mere measure of exchange value to a means of investment in commercial venture" (Valeri, 2011, p. 146).

Money came to be viewed as a productive asset and "loans that were a matter of mutual economic opportunity by which transaction both the borrower and the lender might improve their economic circumstances" (Presbyterian Church USA, 2006, p. 7). The existence of price inflation rendered the Aristotelian assumption of "sterility" outdated (Valeri, 2011). Eaton (2013) writes that Calvin "becomes the first to construct a theological defense of some forms of interest taking" and allows that "lending money for the purpose of commercial gain was not a violation of the usury prohibitions in scripture" (p. 5). Blomberg (2012) writes:

> With the rise of Calvinism, it became increasingly common to see modern commercial loans as more akin to what ancient Israel contracted with foreigners, and in *those* contexts the charging of interest *was* permitted (Deuteronomy 23:20). This may well be a valid insight; capitalism would barely have moved beyond its most rudimentary stages without the liberal extension of loans repayable with interest. However, the reluctance of so many capitalists today, even Jewish and Christian ones, to recognize the parallels on the international scene with the enormous stranglehold that massive indebtedness on loans *with interest* has on the poorest countries of the world, and thus to support proposals for the forgiveness of substantial portions of this indebtedness, shows how far we have moved beyond Calvin and, for that matter, Adam Smith as well. (p. 210)

Interest or Usury?

Ezekiel 18:10-13 (NLT):

> 10 But suppose that man has a son who grows up to be a robber or murderer and refuses to do what is right. 11 And that son does all the evil things his father would never do—he worships idols on the mountains, commits adultery, 12 oppresses the poor and helpless, steals from debtors by refusing to let them redeem their security, worships idols, commits detestable sins, 13 and lends money at excessive interest. Should such a sinful person live? No! He must die and must take full blame.

Exodus 22:25, Leviticus 25:35-37 and Deuteronomy 23:19 forbid loans to the poor and needy. Ezekiel 18:1-18 condemns excessive interest. A concerned Christian might consider whether or not usury (an exorbitant interest rate) is different from normal interest. Is the use of the term "usury" a modification that indicates our "attempts to rationalize charging of interest and alter the teaching of God?" (Porter, 1999, p. 44). For example, it is certainly the case that microfinance loans appear to have very high interest rates. However, given that the most widely known microfinance institution (i.e. the Grameen Bank) is primarily owned by the borrowers, it is hard to imagine that the high interest rates on loans are due to an effort to oppress the poor. More likely, it is simply the case that the administrative costs associated with one hundred $10 loans are much larger than the administrative costs of one $1,000 loan.

Using a personal finance perspective, Porter (1999) questions whether Rent-A-Center purchases are "usury, or a legitimate legal return for undertaking the risk of selling to a low-income customer?" (p. 44). Why do some people purchase their televisions from Rent-A-Center and pay what amounts to an interest rate exceeding 100%? Consider a recent (2015) look at the rental/purchase of a LG 55" television from Rent-A-Center that indicated that the television could be purchased with 104 weekly payments of $34.99. If the 104 payments were made, then this would make the total purchase price $3,638.96. Given that this same television was available with free delivery from ten other providers with an average price of $1,402, this would make the 104 weekly payments of $34.99 equivalent to a 2.25% weekly interest charge. The 2.25% weekly interest charge is equivalent to a 117% nominal annual interest rate and a 218% effective annual interest rate.

It can be argued that a loan is a mutually agreed upon contract and who is to say what one can and cannot do with respect to their own borrowing and lending? Someone who is upset with an agreed upon high payment plan (high interest rate) is similar to the workers in the vineyard who were upset with their pay at the end of the day (Matthew 20:1-16). Wood (2008) notes that it could be argued that:

> If people pay hundreds of dollars to get paychecks cashed each year, it must be because they value the convenience and discretion of check-cashing services. If they tolerate high rates for payday loans, it is because they value the early access to their money more than the fees. (p. 193)

However, Wood goes on to show that if people have "hyperbolic discounting" and/or "short-term preferences. . . with little regard for long-term consequences" (p. 194), then people will make decisions that they come to regret and believes that biblical guidance suggests that "debtors should be prevented from making contracts that permanently impoverish them" (p. 192).

Excessive interest is hard to define. It is one of those types of concepts where you know it when you see it. Laws to prevent usury and excessive interest run the risk of interfering in competitive markets. However, usury and excessive interest seem most likely to occur in imperfect markets where lenders have a clear bargaining advantage.

A full discussion of usury laws is beyond the scope of this paper, but it will be elaborated on a bit more in the section of the paper dealing with questions and areas for further research.

Economic Justice

Proverbs 14:31 (NIV):

"Whoever oppresses the poor shows contempt for their Maker, but whoever is kind to the needy honors God."

In biblical times, charging interest to the poor and needy was considered a means of oppression. Blomberg (2012) notes that people who lived in the biblical era generally viewed economics with a "limited good" or "zero-sum game" perspective; that is "most people were convinced that there was a finite and fairly fixed amount of wealth in the world, and a comparatively small amount of that to which they would ever have access in their part of the world so that if a member of their society became noticeably richer, they would naturally assume that it was at someone else's expense" (p. 208). The concept of a growing economy with increased opportunity for all was not the way people thought the world worked.

Lynn and Wallace (2001) suggest ten hermeneutic principles for integrating the Old Testament into modern-day commerce. In principle #3: examine the historical and cultural context, they note that the "much debated passages on usury (e.g., Exodus 22:25-27; Deut 23:19-20) provide a classic example of how a passage can be distorted easily by uprooting it from its original setting in Scripture and planting it in today" (p. 20). Many productive modern day commercial loans were not available and in use in ancient times. The threat of slavery is no longer a common consequence for the inability to repay a loan. The time value of money (Fisher, 1930), opportunity cost, and inflation do not seem to be considered in biblical times. Similarly, Wong & Richards (2014) note that:

> Few biblical scholars would support a position that civic laws given in the Old Testament are directly binding today in their given form. However, most would acknowledge that Old Testament laws and commands reflect and/or illustrate broader principles and/or a larger story/moral orientation. (p. 399)

Amerding (2001) notes that biblical "limitations on lending with interest (usury) are specifically tied to circumstances in Israel which may have parallels in contemporary life, but cannot be applied out of context" (p. 153). Biddle (2011) states that the "biblical injunction against usury, then, clearly does not address the issue primarily from the standpoint of the needs of commerce, financial policy, or a coherent economic theory, but with an interest in social justice" (p. 122). Biddle (2011) writes:

> a strong argument can be made that the prohibition against lending at interest was not meant to apply to primarily commercial transactions. Rather, the biblical prohibition represents the fundamental convictions that lending practices can be a tool of oppression and exploitation and that an economic system should be measured not just by the standard of the overall wealth it creates, but also, even primarily, by its impact on those at the fringes of the economy. (p. 127)

Thus, it seems that the majority belief today is that "interest is not inherently prohibited in modern societies, but that lending practices— including interest rates and collateral—must not take advantage of vulnerable people or make people destitute" (Van Drunen, 2014, p. 16). Further, "the New Testament strongly suggests that creating capital by way of interest can be a positive practice" (Wong & Richards, 2014, p. 391) and the "biblical prohibition against charging interest was not a blanket prohibition for all people at all times" (Elder, 1999, p. 39).

NEGATIVE INTEREST RATES

The word "swims" turned upside down still looks like "swims."

On the face of it, negative interest rates seem illogical, contradictory, and upside down. Theoretically speaking, it has generally been thought that if interest rates get too low that monetary policy becomes ineffective and the economy can find itself in a liquidity trap. Writing in 2004, Bassetto states the most economists view a zero bound on nominal interest rates to "be a constraint on monetary policy, which cannot be violated under any contingency" (p. 108). Schmitt-Grohe and Uribe (2009) develop models that show liquidity traps can emerge even if interest rates can become negative. Given the anemic global recovery from the 2008 financial market crisis, one has to wonder if we are currently living in a liquidity trap.

While negative interest rates were once a theoretical conundrum, they are now becoming increasingly widespread. As of 2016, central banks in Denmark, Sweden, Switzerland, the European Central Bank and the Bank of Japan have all imposed negative interest rates on commercial bank deposits. Peshev and Beev (2016) write:

> It is hard to imagine how clients can possibly be paid to borrow money, especially considering all assumptions outlined in books and academic papers on economics, finance and investment. However, this is the reality we live in. (p. 152)

A nominal interest rate is typically thought to include subcomponents. Economists typically think of a nominal interest rate (i) to be made up a real interest rate (r) and an inflation premium (IP): i = r + IP. Finance academicians typically add additional subcomponents for a default risk premium (DRP), a liquidity premium (LP), and a maturity risk premium (MRP): i = r + IP + DRP + LP + MRP. Throughout most of recorded history inflation tends to be positive, expected inflation is positive and nominal interest rates are positive.

There have been periods of time where actual inflation turned out to be above expected inflation and the realized real rate of interest was negative. However, even during those periods, nominal interest rates remained positive. The focus of this paper is on the forward-looking nominal rate of interest using the assumption of a positive real rate of return.

Using the formula: i = r + IP + DRP + LP + MRP, we can see that if the inflation premium is negative (i.e. deflation), then nominal interest rates can be mathematically negative. Other than periods of rampant deflation, do negative nominal interest rates make any sense? The next section will provide an example of negative nominal interest rates in terms of investing in global markets.

Global Markets

Ecclesiastes 11:1 (NIV):

"Ship your grain across the sea; after many days you may receive a return."

Many investors seek to reduce risk and enhance diversification through international investing. Consider the case of negative nominal interest rates on Swedish bonds. Why on earth would an investor purchase a bond with a negative interest rate? Let's reflect on currency appreciation. Assume that a U.S. investor can buy a Swedish bond for 8,500 Krona and expects to receive 8,330 Krona one year from now (a negative 2% return). Alternatively, they could buy a U.S. bond for $1,000 and receive $1,020 in one year (a 2% return). Suppose that the U.S. investor believes that the Swedish Krona was going to appreciate relative to the dollar. If the spot exchange rate is 8.5 Krona for $1 and the investor expects 8 Krona to be worth $1 in one year then the negative return on the Swedish bond could provide a higher dollar return relative to the U.S. bond. That is, 8,330 Krona would be worth $1,041 if the Krona does appreciate to 8 Krona to $1.

The previous example illustrates a case where negative interest rates could prevail in the case of changing international exchange rates. Can it make sense for a bank to charge a negative interest rate on a loan? The next section will consider the case of commercial banking.

Commercial Banking

Matthew 25:27 (NIV):

"Well then, you should have put my money on deposit with the bankers, so that when I returned I would have received it back with interest."

The Message translation of the Bible uses the title "The Story About Investment" for both of the parable of the talents in Matthew 25:14-30 and the parable of the minas in Luke 19:11-27. Saunders (2016) believes that it "is reasonable to use these parables to seek insight in determining God's will regarding managing risk and investments" (p. 58). Within both the parable of the talents and the parable of the minas is the concept of putting money on deposit at a bank to earn interest.

Typically, banks earn a profit by charging an interest rate on loans that is higher on the interest rate that they pay on deposits. For example, if a bank pays 2% on deposits and charges 3% on loans then the bank earns a 1% profit. This concept also applies when interest rates are negative. For example, if a bank pays -2% on deposits (receives 2%) and charges -1% on loans (pays 1%) then the bank still would net a 1% profit.

Two questions naturally arise when considering the previous example. Why would it make sense for a consumer to deposit their money in a bank that with a negative interest rate on their bank deposits? If a bank provides a negative interest rate on deposits, then a consumer could store their money under a pillow. However, the money under the pillow could be stolen. Bank deposits provide a higher level of insurance and safety relative to private storage. Additionally, storing money at a bank provides transactional benefits such as direct deposit and automatic bill pay. Thus, depositing money at a bank could be worthwhile even if the interest rate on deposits was negative.

The second question that arises when considering negative interest rates at a commercial bank is why would the bank lend out the money? If the bank is receiving 2% on deposits, then why would they lend out money at -1% and reduce their profits. There are two reasonable explanations why it may be in the banks best interest to lend out money at a negative interest rate. One, if the bank charges fees (as discussed below), then the bank could still earn a positive return from a loan with a negative interest rate. Secondly, there are multiplier effects in lending. As money is spent and re-deposited into the banking system then more money is created and banks total deposits increase. For example, it is better to earn 1% on deposits of $5,000 then to earn 2% on a deposit of $1,000.

A dilemma that is created with negative interest rates is the potential for a free rider problem. It is in the best interest of the banking system as a whole to lend out money (even at negative interest rates), but it is in each individual banks' best interest to hold onto its deposits and forego losing money on a loan with a negative interest rate. This dilemma is a possible explanation for why global financial markets seem to be stagnated with relatively low levels of lending and little economic growth.

Additionally, another way to see how a bank could remain profitable with negative interest rates on loans would be to include fees. For example, consider a $1,000, one-year loan with a -2% interest rate and a $50 origination fee. If the fee is collected at the time of the loan, then the bank would loan out a net $950 and receive back in one-year $980. In this case the -2% interest rate loan combined with an origination fee nets the bank a profit of 3.2%.

The previous examples are provided to show that commercial banking and international investing can make sense in a world with negative interest rates. The next section of the paper will suggest questions and areas for future research.

QUESTIONS AND AREAS FOR FURTHER RESEARCH

Romans 12:2 (NIV):

> Do not conform to the pattern of this world, but be transformed by the renewing of your mind. Then you will be able to test and approve what God's will is—his good, pleasing and perfect will.

Christian business professionals face a constant struggle of coming to terms with the ideas of comfort, compassion, sharing, and generosity found through studying the Bible and the 24/7/365 profit-maximizing world of contemporary capitalism. This paper proposed and addressed many questions related to biblical perspectives on interest and the relatively new concept of negative nominal interest rates. However, many interesting questions remain unanswered. This section seeks to outline some additional questions and areas for future research.

Many possible studies could be examined in terms of the effects of interest rates on macroeconomic variables. Looking forward, an interesting question that could be examined is: will future GDP growth rates become robust or stagnant as a result of negative interest rates? A current study could investigate how we balance our interpretation of biblical verses when there are both positive and negative interest rates at the same time. What are the effects on international investing and capital flows? Looking back, when the Swiss government ran a de facto negative interest rate regime in the early 1970s, did it work? What is/was/will be the effect on low income households? What is/was/will be the effect on the overall economy in terms of output, unemployment and inflation?

Interest rates are the price of money. Insights from price theory as they pertain to usury laws could be an interesting study. Usury laws are effectively price ceilings. If set below a market equilibrium, a price ceiling creates a shortage. What are the implications of well-intentioned usury laws if they create a shortage of money for high-risk borrowers (e.g. see Honigsberg, Jackson & Squire, 2016)?

Additionally, the Bible contains many passages related to honest weights and measures. The use of honest weights and measures is directly related to prices and thus indirectly related to interest rates as the price of money. For example, Leviticus 19:35-36; Deuteronomy 25:13-15; Proverbs 11:1, 16:11, 20:10, 20:23; Ezekiel 45:10-12; Hosea 12:7; Amos 8:4-6 and Micah 6:11 all deal with the concept of honest weights and measures. Further, Deuteronomy 19:14, 27:17; Job 24:2; Proverbs 22:28, 23:10-11; and Hosea 5:10 relate to the concept of moving landmarks. To look at these issues more broadly one could consider the question: How do the biblical concepts of honest prices meld with economic efficiency? (See Cafferky, 2013.)

Finally, it would be interesting to see a more elaborate comparison and contrast of the differences in consumer lending and commercial lending in the presence of negative interest rates. To generalize, consumer lending can be thought of as loans to people in need, whereas commercial lending can be thought of as investments in business ventures. The Bible seems to have pretty clear direction on the prohibition of interest on loans to the needy (e.g. Exodus 22:25). However, in the parable of the talents (Matthew 25:14-30) and the parable of the minas (Luke

19:11-27), interest seems to be expected. What are the biblical implications for these different types of loans/investments with negative interest rates?

CONCLUSION

Proverbs 19:17 (NIV):

"He who is kind to the poor lends to the Lord, and he will reward him for what he has done."

A finance professional thinking about their business dealings as if lending to the Lord can certainly put a damper on the amount of personal gain one would want to extract. This paper examined biblical perspectives from both the Old Testament and the New Testament on interest and lending. This paper proposed and addressed many questions related to the relatively new concept of negative nominal interest rates. Suggestions for additional questions and areas for future research were provided. Now this paper seeks to come to some conclusions.

In the case of positive interest rates, the Bible suggest that Christians are called to be both compassionate and productive. Christians should treat others the way they want to be treated. In cases where someone is in need, a gift rather than a loan should be considered. In cases of mutually beneficial loans that lead to economic growth, then interest is a reasonable payment for the use of funds. In cases of high-risk loans, a Christian should not charge a disproportionately large default risk premium and should aspire to avoid excessive interest.

Negative interest rates do not have much of a history to judge their ability to serve as a useful price signal and to allocate resources efficiently and productively. Negative interest rates do provide some concerns in terms of possibly creating liquidity traps and/or low levels of bank lending. However, negative interest rates can theoretically function in a manner similar to positive interest rates. In fact, negative interest rates may open up some interesting possibilities in terms of stimulating growth and lifting people out of poverty. Wouldn't it be awesome to live in a world where banks pay low-income people to borrow money for productivity-enhancing investments.

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