Modern Finance Through the Eye of Faith: Application of Financial Economics to the Scripture

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ABSTRACT: The tying of Scripture to key concepts in the science of modern finance offers important pedagogic value to students who appreciate the unqualified relevance of God's living word in the pursuit of truth. In particular, modern finance as a behavioral science derives a body of knowledge from human psychology and decision rules that are also vividly displayed in biblical events, metaphors, and conducts of personalities. In addition, the Scriptural illustrations contain gems of Godly wisdom, incorporating moral-spiritual principles that are often ignored but, in fact, critical in crafting effective responses to the recurrent financial crises of today's global economy.

INTRODUCTION

The purpose of this paper is to demonstrate how biblical illustrations may be woven into the teaching of key concepts in modern corporate finance. Biblical principles have long been applied to personal finance practices such as lending and borrowing, giving and saving, as well as insurance and budgeting in popular works of general interest.[1] This cannot be said, however, of modern concepts in corporate finance. In fact a careful search of the academic literature reveals no serious attempts to date in integrating Scripture with the study of modern corporate finance and its economic underpinnings.[2] In particular, scholarly work on the practical teaching applications of Scriptures in modern corporate finance are largely absent, although there have been useful attempts within the discipline of economics (Chan, 2009; Claar & Klay, 2007; Stamm, 2001).

An important objective of integrating faith and learning is to make the Scriptures relevant in understanding, elucidating, and applying modern theories of human behavior. In deference to Moreland (1997), Christian scholars are encouraged to engage their intellect in integrating faith and reason so that they can worship God with the totality of heart, soul, and mind. For Christian educators, this recognition would mandate the embrace of a pedagogy that affirms the relevance of Scripture at every step of the learning process. Secular instructional media and research literature offer observations and models that claim ownership of rightful perspective on explicating and solving the world's socio-economic problems. Yet if all "truths" emanate from a singular source, the word of God, then tying Scriptural passages and principles to the issues and insights of disciplines-specific content can only serve to complement such theories and facilitate the intellectual and spiritual growth of all who seek the truth (Smith & Johnson, 1997). In particular, a deep spiritual heritage undergirds all human economic activities. As theologian Carl Henry (1955) properly observed, "Separate the economic sphere from the living God and his claims, and men will drift from one crisis to another under any economic formula" (p. 1244).

Modern financial economics explains financial behavior in the context of risk, time, options, and information (Sharpe, 2007, p. 12). These same parameters transcend time and culture and govern the decision-making practices and recorded behaviors of biblical characters, whether real or allegorized in parables. Contrary to the misguided view that modern finance is too far removed from biblical cultures and practices, Scriptural accounts offer rich illustrations and insights into human decision principles that govern the behavior of modern markets and institutions.

The psychological prerequisites of modern financial economics as an academic discipline are frequently observed or implied in biblical accounts. The use of Scriptural references in teaching and studying modern finance allows the student to appreciate not only the timeless relevance of the Scriptures, but also the spiritual insights that often accompany biblical illustrations.

With financial sector activities assuming primal influence in today's integrated global economy, finance as a study of human behaviors and decision-making assumes added importance beyond being a discipline of purely quantitative, theoretical inquiries. Indeed, the unconstrained drives of human passions, rather than the deliberations of the rational economic agent, appear to be frequent contributors to observed behaviors in financial markets (Loewenstein & O'Donoghue, 2004; Jensen & Meckling, 1994). This behavioral perspective injects a spiritual-moral dimension that suffuses the interplay of passions such as confidence, fairness and greed (corruption), which are recognized by some scholars as key drivers of modern financial and economic crises (Akerlof & Shiller, 2009). The merit of biblical perspectives in educating the next generation of business leaders thus rises beyond the level of pedagogy as it offers meaningful alternative, and perhaps uniquely effective, answers to human frailties that persistently ail financial systems and spawn recurrent cycles of boom and bust.[3]

SOME KEY PRINCIPLES OF MODERN FINANCE

Several key principles of human behavior underlie the development of modern finance as a cohesive body of knowledge in the last half century (Eakins, 2004, pp. 12-16; Keown, Martin & Petty, 2010, 4-8). Three of these principles are examined in this article within the context of financial decision-making. These are the principles of risk aversion, which involves choices under the uncertainty of future outcomes; the principle of time preference, which involves choices in the face of positive time value with reference to money and the implied capacity to consume; and the principle of information asymmetry, which involves choices in an un-level playing field where the quality and amount of information possessed by contracting economic agents diverge.

These principles are often introduced in the classroom as inductive reasoning or theoretical propositions. Rather than being abstract constructs, the concepts are much better understood by students of finance as behavioral rules that find widespread applications in everyday life. To integrate biblical accounts into the teaching and learning of such concepts is particularly meaningful to the Christian student or scholar. Biblical accounts connect abstract ideas with real events and personalities, thereby helping to soften the technical nature of finance theory. In addition, the effective employment of Scripture to elucidate principles governing observed behaviors in complex modern markets can aid in demonstrating the timeless relevance of God's word.

Risk Aversion

Risk is defined as exposure to a proposition of which one is uncertain (Holton, 2004, p. 22). If one acts on the proposition, it is because the action will have material consequences for the decision maker, who harbors a certain expectation of the outcome. This expectation is an optimal forecast of the most likely result, incorporating both the dimensions of time and quantity (or the extent of actualization of a non-quantifiable event). Given the uncertainty surrounding the realization of an expected outcome, a rational individual will take risk only if the expected reward of doing so is commensurate with the materiality of a chance, unfavorable outcome. Risk-taking therefore responds to appropriate compensation in the form of a risk premium over and above the risk-free alternative. A risk-averse individual will pursue a risky proposition only if the expected outcome has a risk-adjusted, or certainty equivalent, reward exceeding that of a risk-free alternative (Bodie, Kane & Marcus, 2009, p. 160). An adequate risk premium, whether in the form of gain or avoidance of cost, will entice even the highly risk-averse individual to embrace a risky proposition.

When first exposed to the concept of risk, students often focus on the likelihood of loss instead of the likelihood of merely "missing the mark," i.e., a realized outcome that is different from the expected one. Students also often relate risk-taking to an act of gambling, when in fact most risk-takers are risk-averse, acting on the incentive of rewards, instead of risk-seeking as is the case in gambling. Moreover, the practical implication of risky behavior is trivial if the consequence of such behavior is immaterial (i.e., if behavior is insensitive to outcome), a subtle but crucial point often missed by students. Finally, risk is rooted in the economic concept of utility, which readily allows for non-monetary measurements (Bernstein, 1998). The Bible recounts numerous incidents where individuals make weighty choices in response to non-monetary incentives under uncertainty. It is a manual on how to respond to risk with faith.

The concept of faith in Christianity can be analogized to a journey of risk-taking. The faithful desires to align his or her expectation with God's sovereign will which, however, is unknowable in advance for any specific action or outcome. There is no doubt that God will always keep his promises, which lie at the heart of the Bible. However, God will deliver only on his terms, to his intended audience, by his methods, and in his time (De Haan, 2002). In other words, God's promise to deliver often manifests itself in ways that are at odds with the expectation of the faithful, resulting, humanly speaking, in uncertainty and thus, risk. To suggest that God will always deliver according to human expectation is to deny God's sovereignty. Yet God will never fail to deliver on his promise to the faithful in accordance with his own will. Our trust in the eventual realization of God's promise is the anchor of faith and is the reason believers take the risk. In spiritual risk-taking, believers pursue a course of action either out of obedience to God's commands or to avoid God's punishment. As a result, these actions carry opportunity costs with material consequences, much in the same way financial risk-taking carries costs that must be justified by the expected gains.

The Bible contains an abundance of examples on risk-taking. A most telling illustration is found in Genesis 22, where God commands Abraham to sacrifice his only son, Isaac, at Moriah (Gen. 22). The Scripture is clear that Abraham, the father of faith, never doubted God's promises and acted on them in spite of the absence of evidence that they would be fulfilled (Morris, 1981, p. 117). To Abraham, however, the command of Isaac's sacrifice creates much uncertainty and carries material consequences with respect to how God may indeed fulfill his earlier promise that it is "in Isaac your descendants shall be called" (Heb. 11:18). Abraham is now exposed to a proposition of which he is uncertain. Indeed the Bible indicates that Abraham "considered that God is able to raise people even from the dead" (Heb. 11:19). Although he believes, the uncertainty surrounding the manner and timing of God's delivery is real.[4] Being human, it is safe to assume that Abraham would not have enjoyed entertaining such a proposition and would have naturally fallen for an option of avoidance (the risk-free alternative). The fact that he acted obediently simply reflects a belief that the risk-adjusted, or certainty equivalent, reward of his action far outweighs the benefit of the risk-free alternative. A strong faith is driven by a strong belief in the reward of obedience.

An interesting contrast to Abraham can be found in the story of Jonah (Jon. 1-4). God's call to Jonah as a missionary to Nineveh, a wicked hotbed of hostility to Israel, has so much downside that the certainty equivalent outcome is clearly overwhelmed by the risk-free alternative. To Jonah, if the Ninevites act in their usual wickedness, he would most certainly be killed. If by a miracle of God they repent of their sins, then a spared Assyria can only be God's scourge for Israel (Ellison, 1985, p. 369). On the other hand, God could very well send another prophet in Jonah's place if he refuses to go. It is understandable therefore a risk-averse Jonah would choose to flee his mission. Had he viewed the mission from God's perspective and considered the eternal value of saved souls, a Jonah persuaded by selfless assessments might very well have found the risk-adjusted reward a worthwhile alternative to the safety of retrenchment.

The reward of risk-taking in the Scriptures is often seen in the context of faith in the promise of God's word. Abraham believed while Jonah doubted, with diametrically opposite outcomes. Financial markets and transactions also operate on the basis of faith, yet the promise of reward often eludes the participant because such faith, or trust, is in the effectiveness of reciprocal exchanges and governmental regulations (Seabright, 2004). As borne out remarkably well in recent financial crises, such faith could lead to disastrous consequences because of the fragilities of markets and the institutions that regulate them. For the Christian, the guidepost for risk-taking needs to be anchored in the spiritual rewards of obeying God's word. Unlike human institutions, the promises of this faith can never be compromised by human frailties.

Time Preference

The vicissitudes of life induces a common human disposition: that the distant future does not matter much for current decisions. When faced with the decision of consumption, the willingness of an individual to defer such present enjoyment to tomorrow reflects his or her subjective rate of time preference, which can be thought of as an interest (discount) rate because it measures the rate of substitution between consumption bundles over time (Copeland, Weston, & Shastri, 2005, p. 5.; Mas-Colell, Whinston, & Green, 1995, p. 734).[5] In established capital markets, these individual inter-temporal allocation decisions are facilitated by market interest rates that combine both production and consumption possibilities. In the absence of such markets as in biblical times, the decision-maker discounts future prospects based on a subjective preference for inter-temporal tradeoffs. In either case, the present value of a deferred consumption is inversely related to the degree of time preference and the length of deferral. The value of money, or the consumption that it enables, therefore depends on when it is received. In other words, money has time value.

The time value of money is among the very first concepts introduced in almost all corporate finance curricula. The mathematics of compounding and discounting is often methodically presented with a certain given interest rate. An in-depth discussion of the determinants of interest rates, however, needs to involve a discussion of time preference. Biblical examples help illustrate time preference often by exposing the weak links of human emotions. Influences on inter-temporal choices come most strongly from affective behaviors, such as impatience, greed and fear, that are also among the principal drivers of disruptions in contemporary financial markets.

An individual who slights the value of a future promise and/or who craves for instant gratification will have a steep time discount rate. In the Old Testament, a famished Esau returning from the field was willing to trade his birthright for a pot of stew and some bread from his twin brother, Jacob (Gen. 25:29-33). Esau's preference for present consumption overwhelms the promise of riches from a future inheritance. By relegating the rights of a first-born, Esau loses the prerogatives of both material (e.g., a double portion of the inheritance, see Deut. 21:17) and spiritual blessings (Gen. 27:1-4). Given the sizable wealth of Isaac, who was not by any measure a young man when the incidence took place, Esau's behavior can only reflect a steep subjective rate of time preference. Indeed Esau so underestimates the value of the present and future blessings from the Almighty that he must have "despised his birthright" (Gen. 25:34).

Patience is a manifestation of faith and a fruit of the spirit (Heb. 6:12, Gal. 5:22). When the circumstance is pressing and confidence is tested, the uncertainty of a distant future crowds out trust and even divine promises, magnifying the tangible benefits of immediate or short-term choices. From the fact that the Israelites trekking through the Sinai wilderness would trade nothing for the instant satisfaction of their physical needs,[6] to Saul's impetuousness as he sacrificed burnt offerings against God's commands (1 Sam. 13:8-14), to the prodigal son's hasty embrace of the seduction of a wanton lifestyle (Luke 15:11-32), the tendency to fall for short-term fixes or fulfillment of desires is a human frailty that ensnares biblical characters as well as modern markets (Liang, 2010, p. 51). In contrast, the active anticipation of a joy forthcoming, especially one steeped in the essential grace of faith and love, could render insignificant whatever gap chronological time may effect (1 Cor. 13:4; Heb. 6:15). This, indeed, is what happened with Jacob, whose love for Rachel makes seven long years seem to him but a few days (Gen. 29:20).

Information Asymmetry

Although not all transactions in life are zero-sum games,[7] one party's gain is often matched by another's loss when there is information asymmetry. In other words, a lack of knowledge about the other party makes it impossible for the victimized party to make accurate decisions when conducting the transaction. Often, the informed party or agent would exploit the uninformed agent's ignorance for self gain at the time of contracting, a situation known as adverse selection (Mas-Colell, Whinston, & Green, 1995, p.440).[8] This explains why, for example, careless drivers would seek low deductible insurance coverage and borrowers with undisclosed risky (yet high payoff) ventures would be willing to pay higher loan rates. But conditions of asymmetry can develop subsequent to contracting, when the agreement in essence insulates the agent from risk and encourages activities that are undesirable for the other party. This, known as a moral hazard problem, explains why the availability of insurance encourages risky behaviors of the insured and hired management would act in self-interest rather than in the interest of the owners (a principal-agent or agency conflict problem) (Ross, 1973).

In the classroom, the explanation of asymmetric information and its effects on economic behavior is central to the discussion of modern financial market structures, the implications of financial regulations, and even the causes of financial crises (Mishkin, 2010). As is true with most human transactions, many described in the Bible are characteristic of parties possessing private information who act to maximize personal gains at the expense of others. Indeed, the Bible presents a wealth of strategic situations stemming from the daily life of characters permeated with conflicts, situations that offer interesting studies in game theory (Brams, 2003). The biblical examples, however, are particularly valuable in demonstrating to students how God, in his sovereign will, allows human weakness to exploit the worthiness of human interaction for selfish gain and thus invariably reap the due rewards in the end.

The most dramatic event in all of human history, the fall of mankind, is an interesting illustration of adverse selection. In his contrivance to beguile an unsuspecting Eve, who was nonetheless eager to enter the transaction thirsting for intellectual (a wisdom apart from God) and carnal (the lure of sightly and savory food) gratification (Gen. 3:1-7; 1 John 3:8; Rev. 12:9), Satan sought total dominion over God's earthly creation by ushering evil into the human world. Satan has superior knowledge and would not hesitate to entice Eve into a transaction that she cannot win. Satan exploited Eve, and consequently Adam, for her ignorance and connived to usurp absolute authority as god of this world (2 Cor. 4:4). He would have assumed control over the human soul but for the surprise of God's redemptive plan through the self-sacrifice of an incarnate Christ (Rom. 3:24, Eph. 1:14, 1 Cor. 15:22).

A biblical example of moral hazard can be found in the folly of King Hezekiah. During the king's illness, God granted Hezekiah's plea to extend his life and also deliver his kingdom from the Assyrians while he was alive (2 Kings 20). In effect, God offered the king an insurance policy. A healed Hezekiah was so emboldened that he flaunted his entire wealth to the visiting Babylonians who, scarcely a century later, would come to loot these very treasures and carried off the nation of Judah into exile. Hezekiah sought peace and security for himself and ignored God's will and greater purpose (2 King 20:19), a clear act of agency conflict.

In contrast, the moral principle of stewardship is a lesson well learned in the life of Joseph. The patriarch, while he was languishing in Egypt after being sold into slavery by his jealous brothers, demonstrated unswerving faithfulness by always acting in the best interests of his human masters (Potiphar and Pharaoh) and the divine interest of his heavenly master (God). Joseph was never swayed by the lure of short-term personal gains, as exemplified by his resistance to the advance of Potiphar's wife (Gen. 39:8-9), his single-minded pursuit of wealth for Pharaoh (Gen. 47:14, 20-26), and his kindness towards his brothers because of his understanding of God's divine purpose (Gen. 45:4-5). Joseph's actions bear unmistakable testimony to the calling of a faithful steward, in which the principal-agent problem, so prevalent in modern financial markets,[9] should simply be a non-issue (Liang, 2010, p. 52).

CONCLUSION

The Scriptures convey God's message to mankind via portraits of human passions and reasons that are interwoven into stories of faith, obedience, and defiance. The modern finance concepts of risk-taking, time preference, and asymmetric information aptly find applications in many such accounts, which also shed light on the affective underpinnings of decision-making in the biblical characters. Pedagogic values aside, the Scriptural illustrations promise to offer unique insights into moral-spiritual principles that are largely ignored inside the halls of cutting-edge academic research or on the floors of frenzied financial trading. These principles, laid down by the Creator God, should be accorded a rightful place in men's incessant hunt for wisdom to deal with recurrent shocks and disruptions in contemporary financial markets. Once again, the late Carl Henry's reckoning rings true: "The disengagement of economic problems from the spiritual realm, the determination to find economic solutions while the religious problem is ignored or held in suspense, constitutes the prime crisis" (Henry, 1955, p. 1244).

ENDNOTES

[1] See, for example, Johnson (1973), Burkett (1994, 1998), Blue (2004), Dayton (2007), among others.

[2] For a recent attempt to integrate modern finance and Scripture, see Liang (2010).

[3] Many prominent economists, beginning with Adam Smith (1790, I.I.47), have long argued that the affective responses to innate passions, such as optimism, greed, and fear, underlie irrational behavior of human beings in otherwise predictable, deliberative decisions with respect to economic affairs. British economist John Maynard Keynes called these passion-driven motives "animal spirits" (Keynes, 1936, pp. 161-62). The concept was recently re-introduced to the public interest by Akerlof & Shiller (2009), among others. A good historical documentation of how irrational human reactions spawn financial panics and crashes can be found in Kindleberger & Aliber (2005).

[4] The "risk" that Abraham entertained is not unlike that undertaken by hedge fund managers who seek to exploit arbitrage opportunities. Although the eventual outcome of these opportunities may be fairly certain (i.e., little risk) given the statistical odds, particularly where the fundamental values of assets are ascertained, it is well known that arbitrageurs face risks of loss due to the limits of arbitrage — unforeseen conditions that are beyond their control (Shleifer & Vishny, 1997).

[5] In the neoclassical theory of interest (Fisher, 1930), interest rate determines the relative price of present and future consumption. Time preference determines the marginal rate of substitutions between present and future consumption. These two rates will be brought into equality at market equilibrium. In Fisher's original model of intertemporal choice, the household's consumption choice can be shown to depend only on the present value of its expected future income, discounted at the market equilibrium rate. In other words, a household's time preference along with its budget constraint, represented by the present value of its expected lifetime income, would determine its choice of present consumption. A multi-period generalization of this model incorporating uncertainty, referred to as the permanent income hypothesis, was offered by Friedman (1957).

[6] See, for example, Exod. 15:24, 16:2, 17:3; Num. 16:41; Deut. 1:27.

[7] In game theory, a game is a situation of strategic interdependence: the outcome of one party's choices or strategies depends upon the choices of one or more other party acting purposely. The interests of the players in a game may be in strict conflict, i.e., one party's gain is always another's loss. Such games are called zero-sum games (Dixit & Nalebuff, 2008, p. 137).

[8] In his seminal paper that demonstrates how information asymmetries can lead to market failure, Nobel laureate George Akerlof (1970) uses the example of the used car market to illustrate why lemons or poor-quality used cars would dominate the market because potential buyers lack the information to assess the quality of used cars. This problem can be overcome by the party with less information through the extraction of otherwise private information from the other party, in a process called "screening" (Stiglitz, 1975).

[9] An excellent survey of the conflict of interest problem in modern financial markets and institutions is provided by Crockett, Harris, Mishkin, & White (2004).

REFERENCES

Akerlof, G.A. (1970). The market for "lemons": Quality uncertainty and the market mechanism. *The Quarterly Journal of Economics, 84*(3), pp. 488-500

Akerlof, G.A., & Shiller, R.J. (2009). *Animal Spirits: How Human Psychology Drives the Economy, and Why It Matters for Global Capitalism*. Princeton, N.J.: Princeton University Press.

Bernstein, P.L. (1998). *Against the Gods: The Remarkable Story of Risk*. New York, N.Y.: John Wiley & Sons.

Blue, R. (2004). *The New Master Your Money*. Chicago, IL.: Moody Publishers.

Bodie, Z., Kane, A. , & Marcus, A.J. (2009). *Investments* (8th ed.). New York, N.Y.: McGraw Hill/Irwin.

Brams, S.J. (2003). B*iblical Games: Game Theory and the Hebrew Bible*. Cambridge, MA.: MIT Press.

Burkett, L. (1994). *The Word on Finances*. Chicago, IL.: Moody Publishers.

Burkett, L. (1998). *Personal Finances*. Chicago, IL.: Moody Publishers.

Chan, A. (2009). Microeconomic applications to the Bible: An extension to Stamm's argument in 2001. C*hristian Business Academy Review, 4*(1), 34-39.

Claar, V.V., & Klay, R.J. (2007). *Economics in Christian Perspective: Theory, Policy and Life Choices*. Downers Grove, IL.: Inter-Varsity Press.

Copeland, T.E., Weston, J.F., & Shastri, K. (2005). *Financial Theory and Corporate Policy* (4th ed.). Boston, MA.: Pearson Education.

Crockett, A., Harris, T., Mishkin, F.S., & White, E.N. (2004). *Conflicts of Interest in the Financial Services Industry: What should we do about them?* London: Center for Economy Policy Research.

Dayton, H. (2007). *Your Money Counts*. Gainesville, GA.: Crown Financial Ministries.

De Haan, K. (2002). *How Does God Keep His Promises?* Grand Rapids, MI.: RBC Ministries.

Dixit, A.K., & Nalebuff, B.J. (2008). *The Art of Strategy: A Game Theorist's Guide to Success in Business and Life*. New York, N.Y.: W.W. Norton.

Eakin, S. (2004). *Finance: Investments, Institutions, and Management*. Reading, MA.: Addison-Wesley.

Ellison, H.L. (1985). Jonah. In Gaebelein, F. (Ed.), *The Expositor's Bible Commentary*, Vol. 7 (pp. 361-91). Grand Rapids, MI: Zondervan.

Fisher, I. (1930). *The Theory of Interest*. Library of Economics and Liberty. Retrieved July 30, 2011 from the World Wide Web: http://www.econlib.org/library/YPDBooks/Fisher/fshToI.html

Friedman, M. (1957). *A Theory of the Consumption Function*. Princeton, N.J.: Princeton University Press.

Henry, C. (1955). Christianity and the economic crisis. *Vital Speeches of the Day, 21*(15), 1243-1248. Retrieved from Military and Government Collection Database.

Holton, G.A. (2004). Defining risk. *Financial Analysts Journal, 60*(6), 19-24.

Jensen, M.C., & Meckling, W.H. (1994). The Nature of Man. *Journal of Applied Corporate Finance, 7*(2), 4-19.

Johnson, A. (1973). *A Christian's Guide to Family Finances.* Wheaton, IL.: Victor Books.

Keown, A.J., Martin, J.D., & Petty, J.W. (2010). *Foundations of Finance* (7th ed.). Boston, MA.: Pearson Education.

Keynes, J.M. (1936). *The General Theory of Employment, Interest and Money*. London: Macmillan.

Kindleberger, C., & Aliber, R. (2005). *Manias, Panics, and Crashes.* Hoboken, N.J.: John Wiley & Sons.

Liang, E.P. (2010). The global financial crisis: Biblical perspectives on corporate finance. *Journal of Biblical Integration in Business*, Fall, 48-61.

Loewenstein, G., & O'Donoghue, T. (2004). Animal spirits: Affective and deliberative processes in economic behavior. Cornell University Working Paper, 4-14. Retrieved July 30, 2011 from the World Wide Web: http://cbdr.cmu.edu/seminar/Loewenstein.pdf.

Mas-Colell, A., Whinston, M.D., & Green, J.R. (1995). *Microeconomic Theory*. New York, N.Y.: Oxford University Press.

Mishkin, F. (2010). T*he Economics of Money, Banking, and Financial Markets* (9th ed.). Boston, MA.: Pearson Education.

Moreland, J.P. (1997). *Love Your God with All Your Mind: The Role of Reason in the Life of the Soul*. Colorado Springs, CO.: NavPress.

Morris, L. (1981). Hebrews. In Gaebelein, F. (eds.), *The Expositor's Bible Commentary,* Vol. 12 (pp. 3-158). Grand Rapids, MI.: Zondervan.

Ross, S. (1973). The economic theory of agency: The principal's problem. *American Economic Review, 63*(2), 134-139.

Seabright, P. (2004). T*he Company of Strangers: A Natural History of Economic Life.* Princeton, N.J.: Princeton University Press.

Sharpe, W. (2007). *Investors and Markets*. Princeton Lectures in Finance. Princeton, N.J.: Princeton University Press.

Shleifer, A., & Vishny, R. (1997). The limits of arbitrage. *The Journal of Finance, 52*(1), 35-55.

Smith, Adam. (1790). *The Theory of Moral Sentiments*. Library of Economics and Liberty. Retrieved July 30, 2011 from the World Wide Web: http://www.econlib.org/library/Smith/smMS.html.

Smith, G.P. & Johnson, S.G. (1997). Faith-learning integration in economics. *Journal of Biblical Integration in Business*, Fall, 46-57.

Stamm, B. (2001). Economic applications to the Bible or "Dad, my Bible has some economics in it. *Journal of Biblical Integration in Business*, Fall, 196-200.

Stiglitz, J.E. (1975). The theory of 'screening', education, and the distribution of income. *American Economic Review,65*(3), 283-300.