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ABSTRACT

Current models in Finance make strong, self-limiting assumptions about the nature of human utility, human relationships, human flourishing, and human growth. These assumptions facilitate tractable solutions to financial problems but ignore subjective determinants of human well-being and value creation within the firm. The philosophical and theological traditions of Catholic teaching, as well as evidence on human flourishing from model social science, call us beyond these models. This paper focuses on three specific areas where a "disconnect" exists between Catholic teaching and current Finance models, highlights the relevance of Catholic teaching, and sketches a framework for more fully integrating human flourishing into Finance models.

I. INTRODUCTION

This paper focuses on three specific areas where a "disconnect" exists between Catholic teaching and current Finance models, highlights the relevance of Catholic teaching, and sketches a framework for more fully integrating Catholic teaching into Finance. First, current models focus almost exclusively on definitions of financial value limited to the objective, measurable dimensions of wealth and consumption. Second, current models focus on static human deficiency needs, where human action arises out of a sense of *lack* or *deficiency*. Such models implicitly ignore both the Biblical and scientific evidence supporting the reality of human *growth* needs, such as the human need for meaning and a sense of transcendent purpose at work. Third, Finance models have an embedded trade-off logic, where a given amount of money is paid to a risk-averse worker who then provides a certain amount of effort. But because effort is personally costly, the worker is assumed to provide as little effort as possible in the absence of additional incentives. Meaningful work as a source of primary human fulfillment is entirely absent in Finance models.

This paper argues for Finance models that more deeply incorporate the subjective nature of work, the integral human development of workers, and the idea of profitable engagement between workers and other stakeholders of the firm. The paper shows that when Finance models are expanded to integrate modern evidence from social sciences, they also more fully reflect John Paul II's vision of work and the human person. Within these models, a "logic of engagement" emerges to complement the logic of economic trade-offs. Engagement logic provides a deeper and richer framework for understanding value creation in firms and gives legitimacy to idea of human flourishing and the dignity of human work in the realm of Finance.

A counterargument to the thesis presented here is that Finance is simply a technique, and therefore human values and subjective human experience are not directly relevant. Just as an engineer can build a good bridge or building without direct regard to subjective human experience, a finance practitioner can execute a financial technique without direct regard to human values. This counterargument has some limited soundness, although it is a mistake to assume that even the engineering of a building is divorced from human values (Churchill once noted that 'we shape our buildings and afterwards our buildings shape us.').

But in a broader sense, Finance is different from engineering for at least two reasons. First, Alford and Naughton (2002) argue that Finance is no longer simply a technique that is subordinate to higher business principles or the broader operations of the firm, but in many instances has “colonized” the other business disciplines; the operational decisions of many modern firms are now dictated by Finance models and thinking. Second, the modern firm is distinct from a building or a bridge because the effective functioning of the firm *depends on* the state of the human persons comprising the firm (whereas the functionality of a bridge depends much less, or not at all, on the state of the people crossing it). Thus, because Finance now dictates many operational decisions within the firm, and because the operation of the firm depends on the state of the *people* in the firm, human values *are* relevant in Finance. This is highlighted in the publication *Oeconomicae et pecuniеariae quaestiones* (2018, sec. II.8), which highlights the need for a people-centered ethics in finance**,** and calls us to imagine a dramatically more complete view of the firm, populated by fully human men and women:

> [I]t must be noted that the systems that give life to the markets are in fact founded on relationships that involve the freedom of individual human beings. It is evident therefore that the economy, like every other sphere of human action, needs ethics in order to function correctly – not any ethics whatsoever, but an ethics which is <u>people-centered</u>.

Such a people-centered ethics requires an *appropriate vision of the human person*:

> It is evident that without an appropriate vision of the human person, it is not possible to create an ethics, nor a practice, worthy of the dignity of the human person and the good that is truly common…. every human action, even in the economic sphere, implies some conception of the human person and of the world, which reveals its value through both the effects and the developments it produces.

Ultimately, the absence of human values in Finance models is problematic because our models affect our decisions, and our decisions help to shape social reality. The strong assumptions that eliminate the subjective dimension of human work, reducing the human person to functions of wealth and consumption, impede our ability to think about the dignity of human work in Finance. They ultimately prevent the development of a genuinely people-centered ethic in Finance.

II. THE IMPORTANCE OF MODELS

A. THE POWER OF FINANCIAL MODELS TO SHAPE THE FUTURE

Kahneman and Tversky (1984) note that "decision problems can be described or framed in multiple ways that give rise to different preferences, contrary to the invariance criterion of rational choice." The models taught and used in Finance describe the functioning of both individual firms and broad markets, but as a practical matter they also inform and influence the worldviews of the human decision-makers within these firms and markets. These worldviews and the decisions which flow from them affect all the firm's stakeholders and ultimately the world in which the firm operates and in which we all live. Thus, precisely because the models presented in business education are tools used to make decisions, they also become instruments that help shape the world of business in their image and likeness. Bandura (1986, 1) explains:

> As psychological knowledge is put into practice, the conceptions on which social technologies rest have even greater implications. They can affect which human

> potentialities will be cultivated and which will be left undeveloped. In this way, theoretical conceptions of human nature can influence what people actually become.

In other words, our models affect our decisions, and our decisions help to shape social reality. Giddens (1994) notes that our models inform and influence our interpretation of our environment and our subsequent decision making and action; our action in turn influences our environment; and thus, there exists a form of "reflexivity" or mutual reinforcement between the two.

Schumacher (1973, 73) describes the process by which models shape reality:

> Economics is being taught without any awareness of the view of human nature that underlies present-day economic theory. In fact, many economists are themselves unaware of the fact that such a view is implicit in their teaching and that nearly all their theories would have to change if that view changed…The ideas of the fathers in the nineteenth century have been visited on the third and fourth generations living in the second half of the twentieth century. To their originators, these ideas were simply the result of their intellectual processes. In the third and fourth generations, they have become the very tools and instruments through which the world is being experienced and interpreted. Those that bring forth new ideas are seldom ruled by them. But their ideas obtain power over men's lives in the third and fourth generations when they have become a part of that great mass of ideas.

And Pfeffer (2005, 125) observes:

> [The] emphasis on the importance of mind-set and mental models as a way of understanding the foundation of organizational success makes intuitive sense. Every organizational intervention or management practice…necessarily relies on some implicit or explicit model of human behavior and beliefs about the determinants of individual and organizational performance. It is therefore just logical that (a) success or failure is determined, in part, by these mental models or ways of viewing people and organizations, and (b) in order to change practices and interventions, mindsets or mental models must inevitably be an important focus of attention.

B. CURRENT MODELS IN FINANCE

Maximization of shareholder wealth is the articulated purpose of the firm in Finance models. For example, one of the most popular Introductory Finance texts, by Brigham and Houston (2019, 18), states: “Throughout this book…we operate on the assumption that management's primary financial goal is shareholder wealth maximization…The primary financial goal for managers of publicly owned companies implies that decisions should be made to maximize the long-run value of the firm's common stock." A well-respected *Principles of Corporate Finance* text by Brealey, Myers and Allen (2010, 9-10) states: "The goal of maximizing shareholder value is widely accepted in both theory and practice. It's important to understand why. Let's walk through the argument step by step, assuming that the financial manager should act in the interests of the firm's owners…" On page eleven the authors further note: "in the U.S., the U.K. and other 'Anglo-Saxon' economies, the idea of maximizing shareholder value is widely accepted as the chief financial goal of the firm." Most undergraduate business students are shaped by the assumption that shareholder wealth maximization is the goal of the firm. Further, they are taught that it is not only the goal of the firm (positive finance) but that it should be the goal of every firm (normative finance).

There is extensive evidence that the shareholder-limited worldview can lead to sub-optimal behavior. Miller and Xu (2017) find that CEOs with MBAs are more likely to manage through short-term tactics (earnings management or restrictions on R&D spending) and that while these tactics are positively correlated with short-term performance and increases in CEO compensation, they are ultimately detrimental both to the firms' reputation and long-run value. Cremers (2017) notes that standard agency theory fails to account for important human limitations and that this has important implications for issues of corporate governance. Cremers argues that agency theory misses the inherently social or cooperative nature of value creation in firms; it may facilitate a rationalization and justification of unethical behaviors; and it prevents consideration of important questions, such as the purpose of the firm (beyond creating value), how persons working in business can develop virtues and skills, or that the strong assumptions behind agency theory are morally neutral.

In addition to sub-optimal behavior, self-limiting models lead to decision-making within firms that may result in the firm operating below its true potential. Ghoshal (2005, 75) argues that "business schools do not need to do a great deal more to help prevent future Enrons; they need only to stop doing a lot they currently do…Our theories and ideas have done much to strengthen the management practices that we are all now so loudly condemning." Hambrick (2005, 106) suggests that academic research and teaching on agency theory are leading to CEOs who are "exceedingly obsessed with shareholder value, in ways that their predecessors were not." West (1011, 18) states: "Examination of MBA student survey data over the past decade demonstrates that students believe the primary purpose of a corporation is to maximize shareholder value and they believe this is how current corporate leaders behave when they are making decisions." This idea is echoed by Jones (2010) and Murray (2013). Friesen (2020) presents a formal model in which the objective of shareholder wealth maximization, when combined with self-limiting assumptions about human flourishing and integral human development, results in a self-limiting worldview and sub-optimal firm performance.

The shareholder wealth-maximization goal rests upon at least three foundational assumptions. The first assumption, dating back at least to Fisher (1930), is that Finance models are justified in ignoring the interior dimensions of human experience and well-being; human utility *can* and *should* be reduced to wealth and consumption in financial models. The second assumption, first expressed by Robbins (1932), asserts that human relationships and work itself must both be treated as purely instrumental, with no inherent human value. The third assumption is that actions that benefit the principal always must come at the expense of the agent or other stakeholder (see e.g., Quinn and Thakor (2019)). A given amount of money is paid to the risk-averse agent, who then provides a certain amount of effort. Because effort is personally costly, the agent will provide as little as possible unless the principal establishes a contract that incentivizes the agent otherwise. The principal-agent relationship is an inherently adversarial *either/or* relationship, where benefits to one party come at the expense of the other. These three embedded assumptions exist in nearly all formal models in Economics and Finance. Within Economics and Finance, we thus have a limited vision of the human person, described in the publication *Oeconomicae et pecunieariae quaestiones* (2018, sec. II.9):

> In this sense, our contemporary age has shown itself to have a limited vision of the human person, as the person is understood individualistically and predominantly as a consumer, whose profit consists above all in the optimization of his or her monetary income. The human person, however, actually possesses a uniquely relational nature and has a sense for the perennial search for gains and well-being that may be more comprehensive, and not reducible either to a logic of consumption or to the economic spheres of life.

III. SPECIFIC LIMITATIONS OF CURRENT FINANCE MODELS

This section considers what a people-centered ethic looks like in Finance by focusing on three limitations of the current models: the elimination of the subjective dimension of human work; the focus on static human deficiency needs and the elimination of integral human development; and the exclusive focus on economic trade-offs. An important conceptual tool in this process is the All-Quadrants-All-Lines (AQAL) framework of Wilber (2000; 2007). The AQAL map is helpful because it makes visible all domains of human flourishing and integrates them into a more complete view of human reality. The AQAL framework is therefore relevant to ethics and helps to illustrate precisely the dimensions of interior human experience (both individual and collective) omitted from Finance models. One reason this is problematic is because these interior dimensions cannot be fully reduced to the exterior dimensions as current models seek to do.

A. Self-limiting Assumption #1: Subjective and Objective Reality of Work

Human work, like the human person, consists of both subjective and objective dimensions and reflects both the individual who works and the larger collective reality in which the work occurs. John Paul II describes the objective nature of work in which human dominion over the earth is achieved by and through work: “There thus emerges the meaning of *work in an objective sense*, which finds expression in the various epochs of culture and civilization." (John Paul II 1981, sec. 5). The goods that I create, and the material compensation I receive in selling them, are both objective and measurable. The objective dimension is manifested in the subduing of the earth,[i] but in all places and at all times remains within God's original ordering.[ii]

But the human person is also the subject of work. It is our human dignity, and not economic value alone, that forms the basis for determining the full value of human work.

> Man has to subdue the earth and dominate it, because as the 'image of God' he is a person, that is to say, a subjective being capable of acting in a planned and rational way, capable of deciding about himself, and with a tendency to self-realization. As *a person, man is therefore the subject of work.* As a person he works, he performs various actions belonging to the work process; independently of their objective content, these actions must all serve to realize his humanity, to fulfil the calling to be a person that is his by reason of his very humanity (John Paul II 1981, sec. 6).

The subjective dimension is intimately connected to the idea of “good work”. Concrete examples of the subjective realm of work include my level of engagement at work, whether my work is consistent with a sense of mission, whether it brings with it a sense of transcendent purpose and the quality of relationships at work.

The assumption that Finance models must be restricted to the objective dimension are increasingly at odds with the reality of value creation in the modern firm. This dissonance is also highlighted by John Paul II in a later encyclical, *Centesimus Annus*:

> [I]t is important to note that there are specific differences between the trends of modern society and those of the past, even the recent past. Whereas at one time the decisive factor of production was the land, and later capital - understood as a total complex of the instruments of production - today the decisive factor is increasingly *man himself*, that is, his knowledge, especially scientific knowledge, his capacity for interrelated and compact organization, as well as his ability to perceive the needs of others and to satisfy them (John Paul II, sec. 32).

But how does one even begin to expand the framework of economic models? Can interior states even be measured? The All-Quadrants-All-Lines (AQAL) (Wilber 2000; 2007) framework provides a useful foundation for expanding Finance models. A key insight from the AQAL model is that at every moment human reality is experienced in at least four dimensions, and that over time human development progresses simultaneously in each. The AQAL approach is best seen as one of several meta-theoretical approaches that provides a reference point for clarifying the different elements present (or absent) in modern financial models. The four dimensions illustrate that reality is both individual and collective and has both interior and exterior dimensions. These domains of human experience are as follows:

1. Intentional or Experiential (the individual, interior "I" dimension; reality as it relates to one's own internal values, beliefs, and self-awareness).
2. Cultural world-space (the collective, interior "we" dimension; the collective internal reality of relationships, ethics, collective values, and culture).
3. Behavioral (the individual, exterior "it" dimension; reality as it is seen externally, in ways relating to an individual's observable actions and behaviors).
4. System or social dimension (the collective, exterior "its" dimension; the dimension of reality relating to observable elements of the social environment).

Wilber (2007) notes, "these are often represented as 'I,' 'thou/we,' 'it,' and 'its'," which are variations on first-, second-, and third-person pronouns; another variation is the Good, the True, and the Beautiful; or morals, science, and art – namely the objective truth of exterior science, which is the True and is captured by both right-hand-side quadrants of "it" and "its"; the subject-oriented (though still objective) truth of aesthetics, which is the Beautiful and pertains to the upper-left, or "I" quadrant; and the collective truth of ethics, which is the Good, and is found in the lower-left, or "thou/we," quadrant.

Figure 1 expresses eight key determinants of human utility, each with extensive empirical support, in the context of the AQAL model. When Finance models are restricted to only the right-hand-side objective dimensions, they only take account of those objective and exterior motivations for human action (e.g., material and physical resources; health; legal and political institutions; and reputation and esteem). Models that eliminate the subjective and intersubjective dimensions ignore meaningful work, human values, transcendent purpose, and meaningful relationships from direct consideration. When used as the basis for corporate decision making, these models may impose an artificial ceiling on the value of the firm. Self-limiting models close off higher levels of overall firm performance and human well-being that can be attained only through a more integrated level of human development that recognizes the importance of value-creation in each of these four dimensions.

B. Self-limiting Assumption #2: Integral Human Growth & Development

The need for meaningful human work has both a Biblical and social scientific basis but is absent in the current models of the firm in Finance. Rather, these models assume that the primary human objective is the maximization of expected utility; most Finance models further reduce human utility to functions of wealth and consumption. The concept of meaningful work is absent, and this is because the concept of integral human development is absent as well.

First, the Genesis account of human work instructs us that man is the proper subject of work; that is, man was not created for work but rather work for man. As explained by John Paul II, in the encyclical *Laborem Exercens:*

> This does not mean that, from the objective point of view, human work cannot and must not be rated and qualified in any way. It only means that *the primary basis of the value of work is man himself,* who is its subject. This leads immediately to a very important conclusion of an ethical nature: however true it may be that man is destined for work and called to it, in the first place work is 'for man' and not man 'for work.' Through this conclusion one rightly comes to recognize the pre-eminence of the subjective meaning of work over the objective one (John Paul II 1981, sec. 6).

Thus, development takes the human person 'outside' of those dimensions of experience historically associated with economics. This point, and the consequences of ignoring it, are made clearly by John Paul II:

> [T]he 'economic' concept itself, linked to the word development, has entered into crisis. In fact, there is a better understanding today that the mere accumulation of goods and services, even for the benefit of the majority, is not enough for the realization of human happiness… This shows that although development has a necessary economic dimension, since it must supply the greatest possible number of the world's inhabitants with an availability of goods essential for them 'to be', it is not limited to that dimension. If it is limited to this, then it turns against those whom it is meant to benefit (John Paul II 1987, sec. 28).

There is also extensive evidence from modern social science that the human person progresses through predictable stages of growth and development, and that meaningful work *emerges* as an important source of human growth only after certain other needs are met. In addition, Finance models reflect the stage of development of those who build the models, as well as the collective developmental 'center of gravity' during the era in which the models were built. The assumptions and features of the model therefore reflect the characteristics of the developmental stage of the era in which they were constructed.

The AQAL framework is useful because it visually captures and integrates human development across multiple dimensions of human experience and suggests that development occurs in different dimensions in a relatively coordinated manner. Consider, for example, an individual characterized by a formal-operational level of cognitive development (Piaget 1972). The moral stance is grounded in the notion of law and order, the importance of the social contract, and individual rights (Kohlberg 1981). One's sense of self is oriented toward a conscientious conformity to the ordered 'rules of the game' and pursuit of individual interests (Loevinger 1976), and consciousness is focused primarily on exterior realities, with inward realities de-emphasized in favor of exterior action (Gebser 1985). Other needs of the human person at this stage of development include certain esteem needs such as reputation and respect of others, prestige, accomplishment, the accumulation of material wealth (Maslow 1970), and a drive for exterior achievement (Graves 2002).

What is interesting is that all the human needs associated with *these particular developmental stages* seem to describe fairly accurately the concerns and motives for human action in current Finance models. This supports the claim that the current Finance models reflect a *particular* stage of human development and are therefore conditionally limited to the stage of development at which they were developed. Diener and Seligman (2004) note that the dimensions of human experience *included* in Finance represent human needs that were prevalent during the era when neoclassical models in Economics and Finance were developed. These include material wealth, safety, and security needs and represent the prevailing cultural 'center of gravity' during the era in which the models were developed.

But the life of a human person is not static, and growth can and often does occur. For example, the next 'stage' of development in several of the dimensions just mentioned tends towards a need for learning, growth, aesthetic appreciation, and self-actualization (Maslow 1970); a focus on universal principles such as justice, equity, and human rights (Kohlberg 1981);

the growth into autonomy, a state in which one is not only able to synthesize or integrate apparently distinct ideas, but also recognizes an inherent autonomy or emotional interdependence with others (Loevinger 1976); and a recognition and emphasis on the importance of human relationships (Graves 2002).

Consider, for example, the developmental stages identified by Maslow (1943; 1970) and Alderfer (1969) who hypothesized that humans are motivated to meet certain needs, and that some needs emerge conditionally as other needs are met:

> It is quite true that man lives by bread alone — when there is no bread. But what happens to man's desires when there is plenty of bread and when his belly is chronically filled? … At once other (and "higher") needs emerge and these, rather than physiological hungers, dominate the organism. And when these in turn are satisfied, again new (and still "higher") needs emerge and so on. This is what we mean by saying that the basic human needs are organized into a hierarchy of relative prepotency (Maslow 1943, 375).

Maslow identifies 'self-actualization,' which he defines as the realization of personal growth, being fully engaged in one's work, living out one's mission—in short, a desire "to become everything one is capable of becoming"—as the highest human need (Maslow 1970, 64).[iii]

A key insight of Maslow (1943; 1970) is that human needs can be classified as either *Deficiency Needs* or *Growth Needs.* The feeling of *lack* is the motivation for human action among Deficiency Needs. When a Deficiency Need is *satisfied*, the motivation for that level of need *decreases*.[iv] With Growth Needs, the feeling of *fulfillment* is the motivation for further human action. When a Growth Need is *satisfied*, the motivation for that level of need *increases*. Learning, engagement at work, self-actualization, and the pursuit of the transcendent are all Growth Needs. Models in economics and Finance almost never include Growth Needs.

One concrete implication of this is that Finance models lack a vocabulary for thinking about the dignity of human work beyond monetary compensation. Worker utility or well-being is viewed as an increasing function of wealth and leisure. Wealth and leisure are in turn assumed to be inversely related (e.g., the more time I spend working the less leisure time I have left). In most Finance models, firms set a wage high enough to entice the human to work, but no higher: the equilibrium wage is just high enough to compensate for the disutility of labor, and in equilibrium the worker's participation constraint is "binding." This means that overall utility of the worker is no higher (or only marginally higher) by working than not-working. We are left without even a basic framework for thinking about what it means for the well-being of workers to increase except at the cost of another.

C. Self-limiting Assumption #3: Trade-off Logic

John Paul II noted that it is not profit alone, but other human and moral factors which must be considered in the operation of the modern firm:

> The Church acknowledges the legitimate *role of profit* as an indication that a business is functioning well. When a firm makes a profit, this means that the productive factors have been properly employed and corresponding human needs have been duly satisfied. But profitability is not the only indicator of a firm's condition. It is possible for the financial accounts to be in order, and yet for the people - who make up the firm's most valuable asset - to be humiliated and their dignity offended. Besides being morally inadmissible, this will eventually have negative repercussions on the firm's economic efficiency. In fact, the purpose of a business firm is not simply to make a profit, but is to be found in its very existence as a *community of persons* who in various ways are endeavoring to satisfy their basic needs, and who form a particular group at the service of the whole of society. Profit is a regulator of the life of a business, but it is not the only one; *other human and moral factors* must also be considered which, in the long term, are at least equally important for the life of a business (1991, sec. 35).

Some of these "other human and moral factors," such as human engagement and human dignity, have been shown to impact both human well-being and firm value.[v] Human engagement and human dignity are associated with growth needs, which makes them fundamentally incompatible with the conventional economic logic of costly effort. The key difference is that, operating under trade-off logic, actions that benefit the principal always must come at the expense of the agent (or another stakeholder). A given amount of money is paid to the risk-averse agent, who then provides a certain amount of effort. Because effort is personally costly, the agent will provide as little as possible unless the principal establishes a contract which incentivizes the agent to act otherwise. The principal-agent relationship is an inherently adversarial *either/or* relationship, where benefits to one party come at the expense of the other.

In contrast, a fundamental principle of the logic of engagement is that actions which benefit the agent can also benefit the principal, in what can be described as a win-win. Interior utility that comes about from an increased sense of meaning, engagement, or higher purpose increases both the utility of the agent and the output of the firm, as illustrated in the Figure 2. While 'costly external effort' is always costly to the employee but beneficial to the firm's owners, 'internal' goods such as employee engagement, a sense of higher purpose, or an acknowledgment of human dignity can lead to greater satisfaction and higher utility for the employee *and* produce beneficial improvements in firm performance, benefitting the owners. A second characteristic of engagement is its *conditional* nature, which emerges after lower needs have been met. One implication of this is that the firm's output is no longer simply a function of costly effort alone, but also depends on the level of engagement conditional on the wage and level of effort.

Jensen (2002) argues that shareholder wealth maximization should be the primary goal for a publicly traded firm, noting that it is "logically impossible to maximize in more than one dimension at the same time unless the dimensions are monotone transformations of one another." When facing tradeoffs between two objectives, the single-valued objective function is necessary because without it "there is no purposeful way to decide where to be in the area where the firm can obtain more of one only by giving up some of the other." It is true that in a world with hard-wired tradeoffs, one cannot simultaneously maximize the two variables with an embedded trade-off relationship.

Yet the logic of engagement presented in this paper illustrates the limited nature of this argument. In a world with *both/and* thinking, the economic logic upon which Jensen's (2002) objection is founded becomes incomplete. Economic trade-offs, which are rooted in human deficiency needs, do not go away. Yet they also do not fully describe the human person, nor the community of persons called the firm. It is possible *both* to promote human flourishing *and* create value, but this can only happen if the subjective dimension of human flourishing, and the associated human growth needs, are given legitimacy in financial and economic decisions. A first step toward establishing such legitimacy involves explicitly integrating the subjective dimension of work in Finance models.

IV. CONCLUSION

Modern Finance models omit key dimensions of human utility and the subjective dimension of human work. These models not only inform the worldview from which financial decisions are made, but increasingly dictate broad operational, managerial, and personnel decisions within the modern firm. There is a tacit assumption by many Finance academics and practitioners that the factors omitted from the models will nevertheless be adequately incorporated into human decisions. Yet this assumption contains an inherent contradiction, since financial decisions are only as integrated as the models on which they are based.

This article has highlighted three areas where Finance models make self-limiting assumptions: eliminating the subjective dimension of work, including ideas such as human flourishing and meaningful work, from models; focusing exclusively on human deficiency needs which give rise to trade-offs; and ignoring human growth needs which give rise to synergies. There exists a disconnect between models in Finance and the extensive evidence that the subjective dimension is value-relevant yet cannot be simply "reduced to" the objective dimension (see e.g., Diener and Seligman (2004) and VanderWeele (2017) and references therein on social relationships and meaningful work as determinants of human well-being and economic value).

It is through an explicit recognition of the subjective dimension of work that the worker fully realizes his "calling to be a person that is his by reason of his very humanity (John Paul II 1981, sec. 6). The integration of the subjective and objective dimensions of work into Finance models does not require that existing models be discarded. On the contrary, it requires such models to be expanded so that both dimensions coexist in a properly ordered framework with the subjective dimension being primary.

An example of a properly ordered co-existence is found in the First Purpose of Incorporation and the First Management Guideline of SONY Corporation. In 1946, Sony co-founder Masaru Ibuka drafted a prospectus for the young company. The prospectus consisted of a statement of purpose, followed by management guidelines. As documented by Brann (2013, p. 166), SONY's First Purpose of Incorporation was "To establish a place to work where engineers can feel the joy of technological innovation, be aware of their mission to society and work to their heart's content." The first management guideline was, "We shall eliminate any unfair profit-seeking, persistently emphasize substantial and essential work, and not merely pursue growth."

This prospectus illustrates two related points. First, Ibuka clearly recognized the importance of both objective profit and subjective human dignity in the management of the firm, only ruling out the seeking of "unfair" profits. But more fundamentally, the management guidelines that focused on objective profit were subordinate to the First Purpose of Incorporation, which focused upon the creative innovation, service to society, and the alignment of one's work and life mission. Such a mission makes no sense to someone who understands labor merely as a something supplied to meet deficiency needs, where work is costly and one works only to get a paycheck. But it made perfect sense to Masaru Ibuka who saw work as intrinsically valuable, contributing to human flourishing and integral human development.

The example of SONY illustrates the feasibility of integrating both subjective and objective dimensions of work into the operations of a for-profit firm. The current article makes the case that such integration would be fruitful in formal models in Economics and Finance as well. The insights of both modern social science and Catholic Social Teaching highlighted in this article are particularly fitting and conducive starting points.

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Figure 1: AQAL Model of Determinants of Human Flourishing

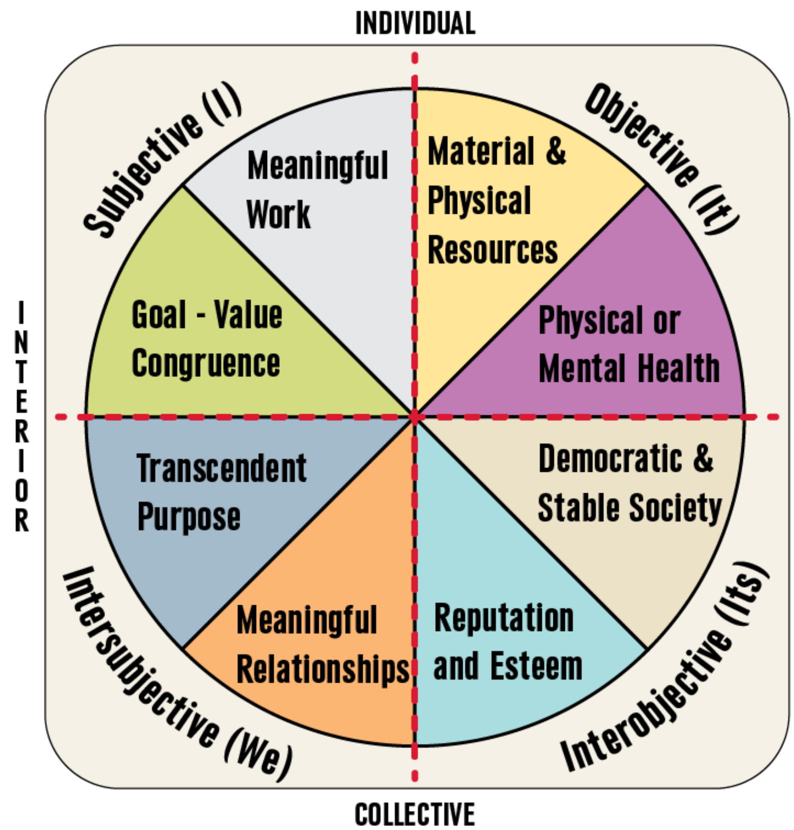
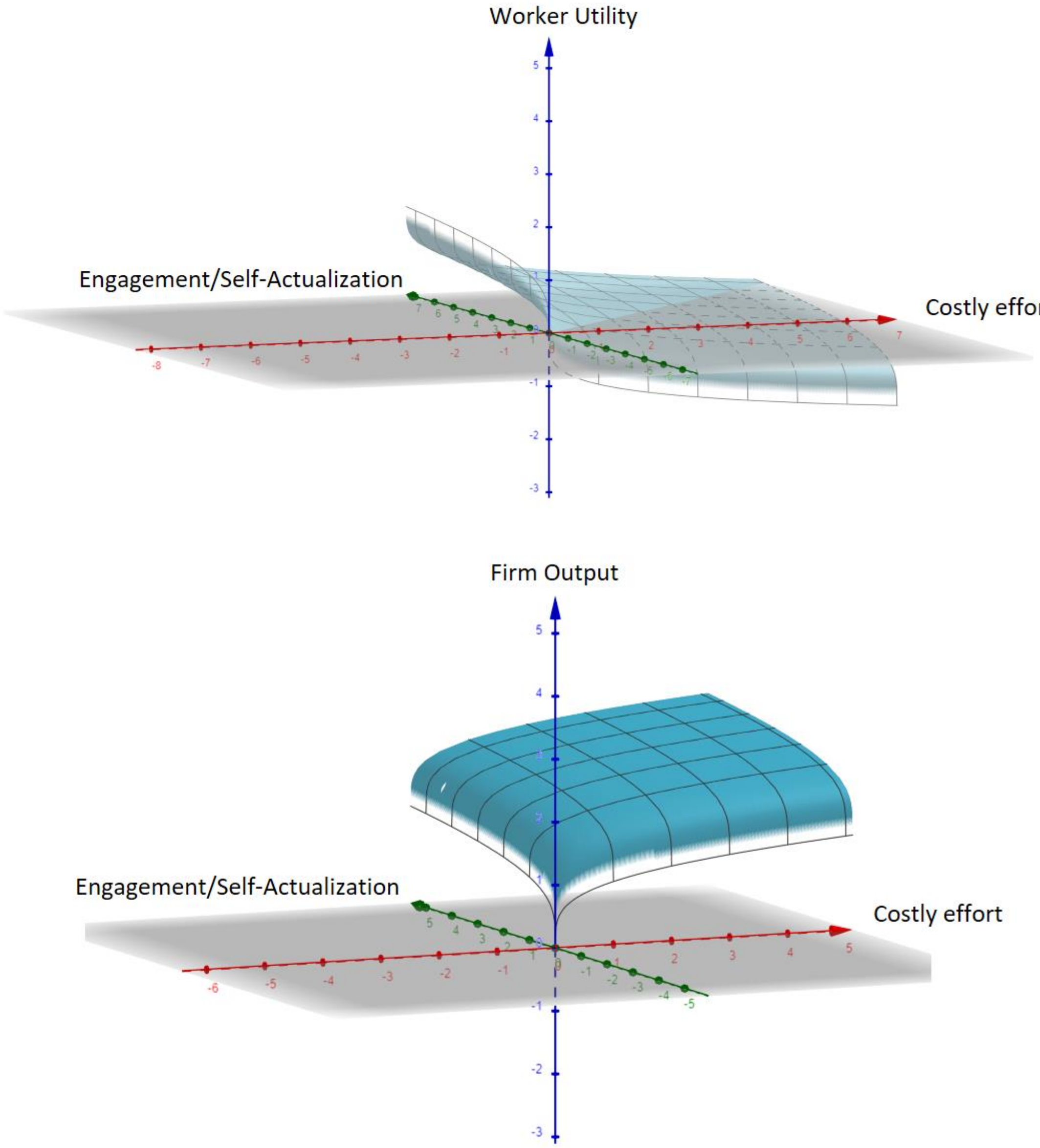


Figure 2: The Logic of Costly Effort and the Logic of Engagement



ENDNOTES

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[i] John Paul II states “the expression "subdue the earth" has an immense range. It means all the resources that the earth (and indirectly the visible world) contains and which, through the conscious activity of man, can be discovered and used for his ends. And so these words, placed at the beginning of the Bible, *never cease to be relevant.* They embrace equally the past ages of civilization and economy, as also the whole of modern reality and future phases of

development, which are perhaps already to some extent beginning to take shape, though for the most part they are still almost unknown to man and hidden from him." (*Laborem Excercens, 5)*

[ii] Again John Paul II notes "While people sometimes speak of periods of "acceleration" in the economic life and civilization of humanity or of individual nations, linking these periods to the progress of science and technology and especially to discoveries which are decisive for social and economic life, at the same time it can be said that none of these phenomena of "acceleration" exceeds the essential content of what was said in that most ancient of biblical texts. As man, through his work, becomes more and more the master of the earth, and as he confirms his dominion over the visible world, again through his work, he nevertheless remains in every case and at every phase of this process within the Creator's original ordering. And this ordering remains necessarily and indissolubly linked with the fact that man was created, as male and female, "in the image of God". This *process is*, at the same time, *universal:* it embraces all human beings, every generation, every phase of economic and cultural development, and *at the same time* it is a process that takes place *within each human being*, in each conscious human subject. Each and every individual is at the same time embraced by it. Each and every individual, to the proper extent and in an incalculable number of ways, takes part in the giant process whereby man "subdues the earth" through his work." (*Laborem Excercens, 5)*

[iii] While Maslow's work has been criticized for establishing a hierarchy of needs that was too rigid, Tay and Diener (2011) find that all of the categories represent valid human needs and that "although basic needs get the most attention when you don't have them, you don't need them to get benefits from the other needs" (e.g. one can have fun with friends even while hungry).

[iv] For example if I am thirsty I will seek out water, but once my thirst has been quenched and I am no longer thirsty, my motivation for obtaining water decreases. In Economics and Finance "human labor" is treated exclusively as a Deficiency Need (e.g. the logic of 'costly effort' … I work only to earn money, and have diminishing marginal utility of wealth).

[v] For example, a large body of empirical work documents the importance of interior human dimensions for firm value (see e.g. Luthans et al. (2007) and Clifton (2011) for meaningful work; Seligman and Csikszentmihalyi (2000) for goal-value congruence; Quinn and Thakor (2018, 2019) for transcendent purpose; Guiso et al. (2015) and Cremers (2017) for social relationships). For example, recent empirical work in financial economics highlights the importance of social capital, which Scrivens and Smith (2013) decompose into four categories, which represent all four domains of experience: personal relationships (I and We), social network support (We and Its), civic engagement (We and Its) and trust and cooperative norms (We). The large interior component of social capital means suggests that that financial models limited to the individual and collective exterior dimensions are not capable of fully modeling social capital and are thus self-limiting.