

**A System Dynamics Examination
of the “Spirit of Capitalism”**

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Abstract

Starting in the mid 1990s, scholars in finance and economics have created a body of literature in a sub-field called the “Spirit of Capitalism.” Using sophisticated econometric models, authors in this sub-field demonstrated that this search for status seemed to drive stock-market volatility and economic growth and tended to make investors more risk averse. However, much of this work suffers from at least one serious flaw—it lacks *operational thinking*. The purpose of this paper is to begin an attempt at identifying the operational underpinnings, and the resulting underlying dynamics, of this “spirit of capitalism.” The paper offers two causal loop dynamic hypotheses and the beginnings of a stock-and-flow system dynamics model. It concludes with some thoughts about issues raised by the current paper, and with how the authors will address these issues and develop these ideas in future work.

A System Dynamics Examination of the “Spirit of Capitalism”

Starting in the mid 1990s, scholars in finance and economics have created a body of literature in a sub-field called the “Spirit of Capitalism.” The sub-field’s name comes from the title of Max Weber’s book *The Protestant Ethic and the Spirit of Capitalism* (1904). The seminal sociologist argued there that the Calvinist Protestant tradition in northern Europe encouraged capitalist enterprise. Calvinism taught that only the “elect” would achieve eternal salvation. Since it was not possible to know the identities of the elect, the idea evolved that it might be possible to discern who they were by observing people’s ways of life. The thinking was that hard work and frugality went along with being one of the elect. Weber (1904) extended the argument to the economic system in general, arguing that this cultural predisposition led to enterprise-building and enterprise-operating action on a wide scale.

Stark (2005) showed that capitalism in Europe developed well before the Protestant Reformation (Venice, among numerous examples, was a deeply *Catholic* city-state, yet its commercial power existed well before Martin Luther pinned his “Ninety-five Theses” to the door of the All Saints Church in Wittenburg). However, Weber’s idea, that the so-called Protestant Ethic—that seeking greater wealth would allow someone to become a member of the elect—was the impetus behind the development of capitalism, took hold. As Weber somewhat baldly put it:

Man is dominated by the making of money, by acquisition as the ultimate purpose of his life. Economic acquisition is no longer subordinated to man as the means for the satisfaction of his material needs. This reversal of what we should call the natural relationship, so irrational from a naive point of view, is evidently a leading principle of capitalism. (Weber, 1958 p. 53)

This is where finance and economics come in. Bakshi and Chen (1996) were the first to examine this idea from the standpoint of consumption *and* stock ownership. Prior to their paper, economics tended to examine wealth solely from the standpoint of *consumption*. Bakshi and Chen argued the Weberian point that “in reality investors acquire wealth not just for its implied consumption, but for the resulting social status” (1996: 133). Using sophisticated econometric models, the authors demonstrated that this search for status seemed to drive stock-market volatility and economic growth (Bakshi and Chen, 1996: 153). They further demonstrated mathematically (and empirically) that the spirit of capitalism tended to make investors more risk averse. They did this by showing the distinction between what they called Model 1 (where investors measured their status relative only to their own wealth) and Model 2 (where investors measured their status relative to a reference group) (Bakshi and Chen, 1996). We shall return to Models 1 and 2 later, when developing our initial dynamic hypotheses.

Bakshi and Chen (1996) unleashed a flood of work, which continues to this day, on the effects of the spirit of capitalism in a variety of contexts: asset returns and the business cycle (Boileau and Braeu, 2007); stock market bubbles and output fluctuations (Kamihigashi 2008);

growth in small economies (Kenc and Dibooglu, 2007); precautionary savings and consumption (Luo, Smith and Zu, 2009); wealth distribution (Luo and Young, 2009); stock market prices (Smith, 2001); and the effect's differences on different income classes (Smoluk and Voyer, 2013). In our opinion, however, much of this work suffers from at least one serious flaw—it lacks what Richmond (1993) called *operational thinking*, which he defined as, "...how things really work—not how they theoretically work, or how one might fashion a bit of algebra capable of generating realistic-looking output" (1993: 127). Most of the work cited above uses mathematics and statistics that are so abstruse that it is not clear how the "spirit of capitalism" *operates* in the capitalist system it purports to drive. For example, Smoluk and Voyer (2013) have to resort to cointegration mathematics to tease out the effects of the spirit of capitalism on the five quintiles of income and wealth. Here is a lengthier quotation from Richmond that uses a different example to show the problem in such models:

A second brief example should further illustrate the notion of operational thinking. A popular economic journal published the research of a noted economist who had developed a very sophisticated econometric model designed to predict milk production in the United States. The model contained a raft of macroeconomic variables woven together in a set of complex equations. But nowhere in that model did cows appear. If one asks how milk is actually generated, one discovers that cows are absolutely essential to the process. Thinking operationally about milk production, one would focus first on cows, then on the rhythms associated with farmers' decisions to increase and decrease herd size, the relations governing milk productivity per cow, and so on. (Richmond, 1993: 128)

The problem with most of the articles cited above is that there are some "cows" in some of them, but not enough in all of them. In many articles in this literature, it is not clear how, operationally, the people who purportedly use their search for status *go about* conducting that search—what jealousies or other comparisons drive them, what they do about them, and so forth. The purpose of this paper is to begin an attempt at identifying the operational underpinnings of this "spirit of capitalism."

Embryonic Dynamic Hypotheses

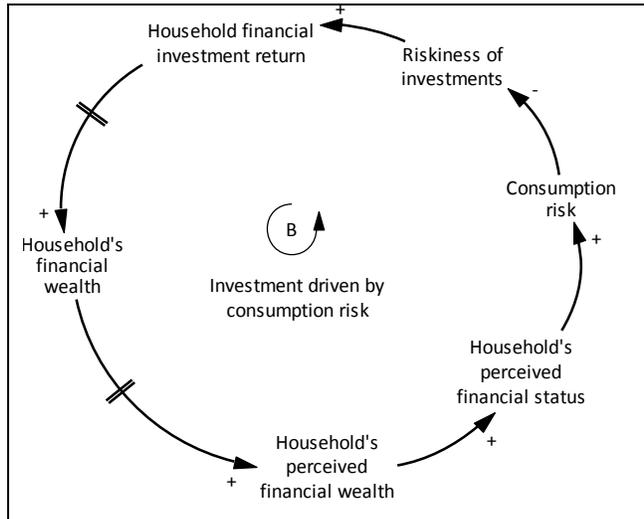


Figure 1 A Dynamic Hypothesis for Bakshi and Chen's "Model 1"

Bakshi and Chen (1996) argue that, absent using a reference group, households gauge their status using only their own wealth. They further argue that households base their investment behavior only on preservation of their ability to consume in the future. Figure 1 shows the resulting dynamic hypothesis (based only on financial wealth, as opposed to also basing it on income and housing) in the form of a balancing feedback loop, "Investment driven by consumption risk." Starting at the left of the diagram, a household has some level of actual financial wealth, which, over time, becomes its *perceived* financial wealth. The household's members base their perceived

financial status on that absolute wealth, and they believe that their consumption risk increases as their perceived financial status increases. This leads them to make less risky investment choices, resulting in lower investment returns (at least in the short term) and lower financial wealth than they otherwise would have achieved. However, it is apparent that this hedging against consumption risk leads to economic growth, as households invest and businesses use those investments as a source of capital.

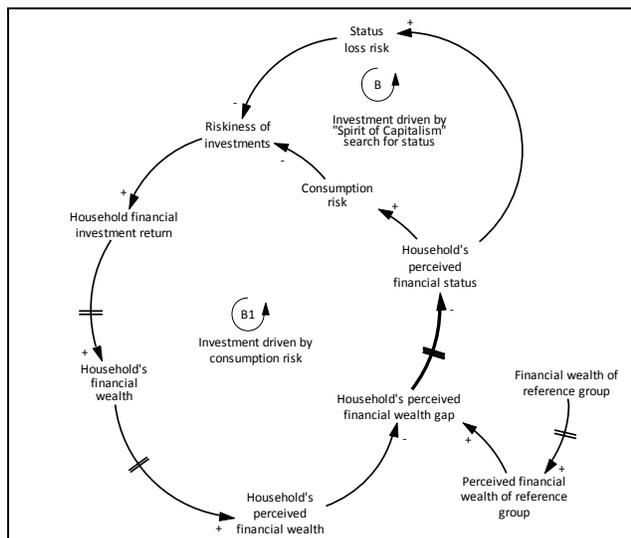
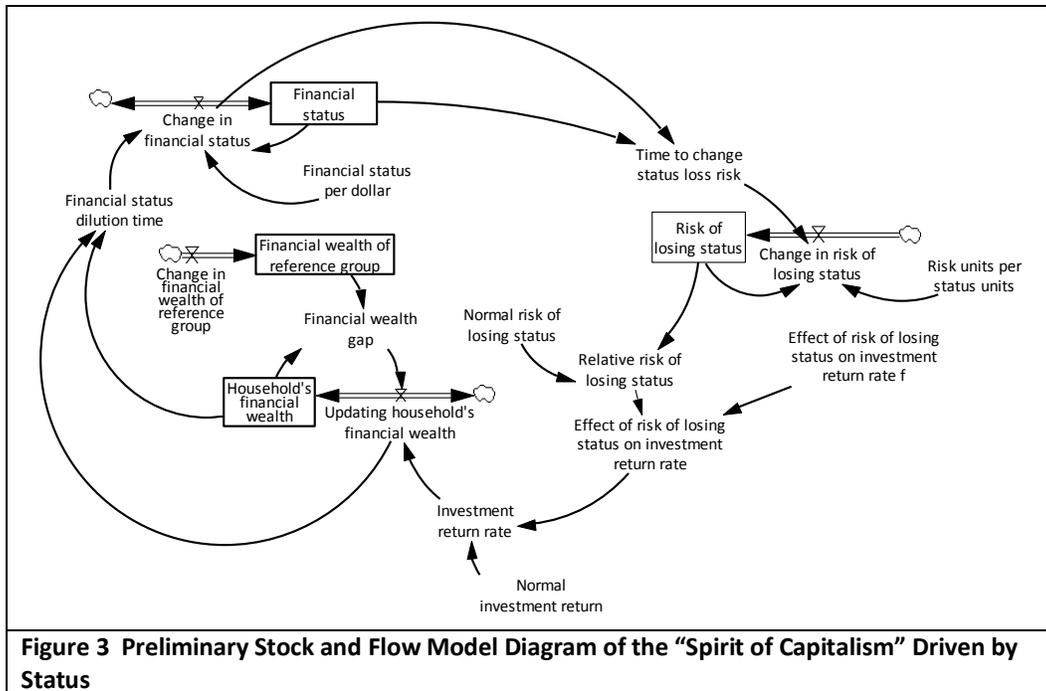


Figure 2 A Dynamic Hypothesis for Bakshi and Chen's "Model 2"

Figure 2 shows a dynamic hypothesis that includes the notion of basing status on comparison to a reference group, Bakshi and Chen's Model 2. Here, Model 1's balancing feedback loop remains, as Loop B1, but in modified form. Rather than basing its perceived financial status on its absolute wealth, it bases it (after a delay) on a gap between that wealth and the perceived financial wealth of a reference group. Figure 2 depicts this new link as a thicker arrow.

However, the figure shows an additional balancing loop, B2, "Investment driven by the 'Spirit of Capitalism' search for status." After ascertaining its perceived financial status, the

household must assess the risk not only of lost consumption power (as in Model 1) but also of loss of status relative to the reference group. Bakshi and Chen (1996) argued that this also made the households more risk averse, and the dynamic hypothesis in Figure 2 shows that the



variable Riskiness of investments now has *two* links driving it down—Consumption risk *and* Status loss risk. As in Model 1, Model 2 still implies economic growth, but growth based on more conservative investing, intended to hedge against both consumption loss and status loss.

Preliminary Stock and Flow Model

Operationalization of these dynamic hypotheses in a system dynamics model is a task for future work, but for the moment, we offer the partial stock and flow diagram we show in Figure 3. Note that this diagram deals only with balancing loop B2, the one dealing with how investors deal with the potential loss of status. As in each dynamic hypothesis, the financial wealth of the reference group is exogenous. A standard goal-gap formulation leads to the identification of a Financial wealth gap between the household and its reference group, which closes by Updating the household's financial wealth, a process driven by an Investment return on the household's wealth. The household's financial wealth has units of dollars, so we use a Hines co-flow to convert dollars to "status units" to yield a level of Financial status. We then use another Hines co-flow to convert those to "Risk units" and a level of Risk of losing status. A table function, based on relative risk of losing status, then regulates the investment return, closing the loop.

Future development of model

Clearly, there are a number of deficiencies in the proposed model. By far the most serious problem is that of the odd units of "status" and "risk," and their related problems of unit conversion. Bakshi and Chen (1996) and the papers that followed them got around this problem by using econometric statistical techniques that revealed correlations, which generally supported their propositions about the effects of status, or more accurately, potential loss of

status. What we seek, by contrast, is an explanation that is more *operational*, that is, one that explains how households *notice* their status and *change their behavior* in ways to protect it. We will try to overcome these problems by intelligent choice of parameters in the next version of the model, but also by trying to find operational surrogates for Financial status and Risk of losing status. If the literature on the “Spirit of Capitalism” has any operational validity, real actors in the economy must be using information, which they can perceive, to make their status-based investment decisions.

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