ternary capital structure

by

William J. McKibbin, Ph.D.†

In the simplest economic models, there are only two factors of production – capital and labor (Baddeley, 2003, p. 9). However, the emergence of intellectual (or knowledge) capital during the late twentieth-century as an increasingly vital value creator heightened the need for new terminology and concepts regarding the nature and properties of all forms of capital.

How knowledge behaves as an economic resource, we do not yet fully understand; we have not had enough experience to formulate a theory and to test it. We can only say so far that we need such a theory. We need an economic theory that puts knowledge into the center of the wealth producing process. Such a theory alone can explain the present economy, …growth, …[and] innovation…. So far there are no signs of an Adam Smith or a David Ricardo of knowledge. But the first studies of the economic behavior of knowledge have begun to appear. (Drucker, 1993, pp. 183-184)

Descriptive research conducted primarily during the final decades of the twentieth century yielded several new taxonomies¹ for understanding intellectual capital (see Upton, 2001, pp. 9-56). This effort appears to have originated in Europe during the late eighties in what has become known as the “Swedish movement” in intellectual capital. Swedish companies have established a reputation as leaders in the disclosure of non-financial performance metrics (Beaulieu, Williams, & Wright, 2002, pp. 142, 152-153).

The essence of the Swedish approach is to acknowledge that every business employs

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¹ Dr. William J. McKibbin is chief consultant at McKibbinUSA, LLC (http://www.mckibbinusa.com). This occasional paper is derived from a previously published work by the author (McKibbin, 2005).
² Taxonomy is the practice or principles of classification. “Taxonomy is important. Finance today is in the primitive state of natural history three centuries ago. Its concepts and tools are limited, and so it frequently confounds species. If we could find new, more accurate ways of discriminating among investments, we would have a major discovery on our hands” (Mandelbrot & Hudson, 2004, p. 262).
three primary types of capital to create and deliver value to its customers. The first is the traditional financial capital of the business. The second is the firm’s human capital. It is at this point that a paradigm shift occurs necessitated by the introduction of a third autonomous factor of production formed by the knowledge assets of the enterprise. This third factor is referred to as structural capital (Annell, et al., 1989, p. 15).2

All companies have a combination of three types of capital: financial, individual,3 and structural. The main focus in this combination depends on how important the different types are. In a pure know-how company with no major dependence on finance, the main focus is closer to individual capital, while the industrial undertaking is considerably more dependent on financial capital and less on individual capital. In a service company, building up a large structural capital is of primary importance. (Annell, et al., p. 20)

During the early nineties, Edvinsson (2002), then a director at Skandia,4 developed the capital taxonomy depicted at Figure 1 (Edvinsson, p. 83; Stewart, 1997, pp. 75-76, 255-256; Value Creating Processes, 1995, p. 5). A key innovation of the Edvinsson construct is its conceptualization of intellectual capital as the aggregate of structural and human capital. For Edvinsson, structural capital5 is what remains after the human capital departs the premises (pp. 94-95). A logically collapsed version of the Edvinsson taxonomy appears at Figure 2.

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2 In general terms, financial, human, and structural capital refer respectively to “physical things,” “human bodies,” and “symbolic signs” (see Popper, 1972; Rammert, 1997, pp. 281-302).
3 The Swedish term individkapitalet translates into English as “individual capital.” The Swedish term for “human” is mänsklig (http://www.worldlingo.com). It is interesting to note the subtle difference in meaning between the terms “individual” and “human.” Clearly, “individual” means a single entity that can be individuated – principium individuationis (Blackburn, 1994, pp. 191-192, 302). However, “human” carries a collective connotation. The word choice is instructive.
4 Skandia (http://www.skandia.se)
5 Structural capital is comprised of customer capital and organizational capital (Annell, et al., 1989, p. 42), the latter of which is “the knowledge used to combine human skills and physical [i.e., financial] capital into systems for producing and delivering want-satisfying products [and services]” (Evenson & Westphal, 1995, p. 2237). Some researchers place customer capital on the same plane as structural and human capital based on the view that customer capital, like human capital, cannot be owned (Stewart, 1997, pp. 255-256). The Edvinsson taxonomy is otherwise similar with customer capital implicitly implied by structural capital.
The current research about capital theory appears to be particularly interested in the importance and value of intellectual capital as a contributor to firm performance and value. Research issues that are thematically linked to the core areas of organization and management include five focus areas: (a) the realm of intellectual capital; (b) the proliferation of intellectual capital measurement; (c) organizational fit; (d) the role of information technology; and (e) cost/benefit issues (Guthrie, Petty, & Johanson, 2001, pp. 375-377).
The primary rationale underlying the intellectual capital movement is that a significant portion of the value generated by a company derives from its intangible assets, which therefore, require monitoring in the same manner as physical resources. The approach provides a flexible and dynamic methodology for measuring and comparing the state of intellectual capital in an enterprise, both internally and externally. However, despite the advancement of the intellectual capital movement, the literature is inconclusive with regard to metrics. Moreover, there has been excessive emphasis on valuations at the expense of flows (Bontis, Dragonetti, Jacobsen, & Roos, 1999, pp. 399-400).

The emphasis on valuation rather than the dynamics of intellectual capital and capital assets in general is unfortunate, especially because a reliable and validated methodology for valuing intellectual capital has yet to emerge.\textsuperscript{6} To be fair, the valuation of fixed business assets is, at best, an estimation of value (Simmons, 2000, p. 10).\textsuperscript{7}

\textsuperscript{6} Put in the form of a well-known business axiom, “You can’t manage what you can’t measure.”

\textsuperscript{7} Trugman (2002) urges business appraisers to include various forms of restrictive disclaimers in their appraisal reports in order to protect themselves from litigation: “Since valuation is a prophecy of the future, forecasts and projections are frequently included in our reports. Appraisers should include some language to indicate clearly that they are not guaranteeing the outcome, nor have they audited the projections, unless they have. We will accept the forecast or projections from management, perform some due diligence purely with respect to the appraisal assignment, and put any and all caveats in our report” (p. 442).
Appraising the value of intellectual capital assets is further complicated by several quality features that defy measurement, including: (a) the knowledge content; (b) the degree of scarcity or non-scarcity; (c) the degree of excludability; (d) the tradability of the asset; and (e) the risk created by information symmetries and asymmetries (DiTommaso, Paci, & Schweitzer, 2002, p. 18). These problems complicate the valuation of intellectual capital, by any means, and thus inhibit their wider circulation (Mouritsen, 2003, pp. 26-28).

![Dynamic capital structure](image)

*Figure 3. Dynamic capital structure*

*Source: Adapted from Annell et al. (1989, p. 20) and Sveiby (1990, p. 85)*

Thus, while the descriptive research appears unlikely to yield a reliable methodology for appraising the true value of a company’s capital factors, the same research does appear to have yielded a potential framework for modeling the capital dynamics in enterprise.\(^8\) Figure 3 illustrates how financial, human, and structural capital relate dynamically while externalizing (i.e., excluding) market value from the construct

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\(^8\) Other potential applications for the research are in utility, incremental, and real options analyses.
as conceptualized by Annell et al. (1989, p. 20) and Sveiby (1990, p. 85). This framework may be further reduced to simply a triangular-shaped vector space in which the vertices represent the financial, structural, and human capital vectors linked by their shared magnitudes at each vertex.

REFERENCES


