

CENTRE FOR FINANCIAL MANAGEMENT

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ARTICLES / CASES

1. FINANCIAL MANAGEMENT IN INTANGIBLE-INTENSIVE COMPANIES

The terms knowledge assets, intellectual capital, and intangible assets are used interchangeably. Economists call them as knowledge assets, management experts refer to them as intellectual capital, and accountants call them as intangible assets or simply intangibles. All of them essentially represent a non-physical claim to future benefits. When the claim enjoys legal protection, such as in the case of patents, trademarks, or copyrights, the asset is referred to as intellectual property. For the sake of simplicity we will use the term intangible assets.

The primary drivers of wealth and growth in today's economy are intangible (intellectual) assets. Physical and financial assets are turning into commodities which at best can earn an average return on investment. Superior returns and dominant competitive position can be achieved only through a judicious use of intangible assets along with other assets. No wonder intangibles now loom large in managerial literature.

The dramatic rise in the importance and value of intangibles in the last two decades can be traced to fundamental changes in the structure and scope of business enterprises. More specifically, the heightened competition in the wake of globalisation, deregulation, and technological changes is forcing companies to depend on continual innovation of products and services to survive and grow. Innovation, in turn, is induced by investment in intangibles (R&D, information technology, employee training, brand equity, and so on). Hence intangibles play a major role in the world of business today.

Gary Hamel stated forcefully the growing importance of intangibles in the new era: "We are at the dawn of a new industrial order. We are leaving behind a world in which scale, efficiency, and reputation are everything. We are taking our first tentative steps into a world where imagination, experimentation and agility are, if not everything, at least essential catalysts of wealth creation."

All organisations employ tangible assets such as land, building, plant and machinery, and intangible assets such as technical knowhow, employee talent, and brand equity. The proportions in which tangible and intangible assets are employed, however, tend to vary widely across firms. Firms in sectors such as information technology, biotechnology, pharmaceuticals, and fast moving consumer goods seem to be more intangible-asset intensive whereas firms in sectors such as oil, automobiles, and steel are more tangible asset intensive.

This section highlights certain characteristics or features of intangibles or intangible-intensive firms and discusses the implications of intangible-intensiveness for financial management.

Characteristics or Features of Intangible Assets or Intangible – Intensive Firms

The important characteristics or features of intangible assets or intangible-intensive firms are as follows:

1. While physical, human, and financial assets are rival in nature—a specific deployment of a rival asset precludes its simultaneous use elsewhere—intangible assets are, in general, non-rival, in nature. This means that they can be deployed simultaneously in multiple uses. For example, the aircrafts and crew of American Airlines can be used during a given time period only on limited routes whereas its famous reservation system, SABRE, a knowledge-

intensive asset, can be used by any number of customers. Intangibles are non-rival mainly because they involve a large fixed (sunk) cost and negligible variable cost. The discovery of a drug or the development of a software programme often requires huge initial investment, but the cost of producing the pills or software diskettes is negligible. This means that intangibles are often characterised by increasing returns to scale.

Given the properties of non-rivalry and increasing returns, intangibles are scalable. This is manifested in the market dominance of many intangible-intensive firms. For example, Intel, Cisco, Microsoft, and American Online enjoy nearly three-fourths or more of the market in which they operate. Such market dominance is unknown in tangible-intensive sectors, where even the most efficient enterprises such as Exxon-Mobil, General Electric, or Ford have less than one-fourth of the market share.

2. Physical and financial assets have well defined property rights whereas intangible assets have hazy property rights. Managers of American Airlines do not worry about the possible misappropriation of their planes and facilities by their competitors but are definitely concerned that their reservation system (SABRE) may be imitated by their rivals.

Even when an invention is patented, non-owners can derive benefits, generally referred to as **spillovers**, through imitation (product reengineering). The numerous patent infringement lawsuits reflect the difficulties and costs of appropriating the benefits of patents. The Amazon.com 1999 10-K report attests the gravity of this problem: "Effective trademark, service mark, copyright, patent and trade protection may not be available in every country in which our products and services are made available online. The protection of our intellectual property may require the expenditure of significant financial and managerial resources."

3. The investment in intangibles is inherently very risky. While a few products or processes may turn out to be blockbusters the rest are likely to be duds. The riskiness of intangibles is substantially higher than that of physical and financial assets. A research study shows that the earnings volatility associated with R&D is, on average, three times the earnings volatility associated with physical assets. It is important to note that the level of risk decreases along the innovation process, as one moves from the discovery stage (new ideas, knowledge) to the commercialisation stage.
4. Intangibles do not generally have organised and competitive markets. As Griliches says: "A piece of equipment is sold and can be resold at a market price. The results of R&D investments are by and large not sold directly... the lack of direct measures of R&D output introduces inescapable layers of inexactitude and randomness in our formulation".

According to some economists, the inability to write "complete contracts" with respect to the outcomes of intangible investments is the cause of the absence of organised markets in intangibles. As David Teece argues. "It is inherent in an industry experiencing rapid technological improvement that a new product, incorporating the most advanced technology, cannot be contracted by detailed specification of the final product. It is precisely the impossibility of specifying final product characteristics in a well-defined way in advance that renders competitive bidding impossible in the industry."

5. A very large portion of the value of an intangible-intensive firm is accounted for by the future growth value.

The market value of the firm can be expressed as follows:

Current Operations Value (COV[®]) + Future Growth Value (FGV[®])

COV[®] is the value of the firm if it merely continues to produce the current level of Economic Value Added (EVA[®]) for ever.

Hence COV^{\circledR} is equal to:

Present value of a constant stream of
EVA[®] discounted at the weighted
average cost of capital + The economic capital
employed in the firm

FGV[®] reflects the value of the expected growth of the EVA[®] in future. It is the difference between the market value (MV) of the firm and the COV^{\circledR} . In a paper titled "Intangible Value Added," Tejpavan Gandhok and Sanjay Kulkarni analysed Hindustan Lever's COV^{\circledR} and FVG[®] in 2001 as follows

Market Value (MV)	=	Rs.47,500 crore
COV^{\circledR}	=	Rs.6,500 crore
FGV [®]	=	Rs.41,000 crore

Thus they found that FGV as percentage of MV for Hindustan Lever was about 86 percent. They looked at FGV/ MV ratio by sector for Indian companies in 2001. Their analysis bears out the point that a large portion of value of an intangible- intensive firm is accounted for by the future growth value.

6. Empirical evidence indicates that investors systematically misprice the shares of intangible-intensive firms. Sometimes investors overvalue intangibles – as they did wildly for dotcoms – and squander capital. For established companies, however, investors often undervalue intangibles. This imposes a high cost of capital, leading to underinvestment in intangibles.
7. The returns on R & D are substantially higher than the returns on physical assets and above the risk-adjusted cost of capital. As Baruch Lev put it: "Annual rates of return on R & D have in recent decades hovered in the range of 25 percent to 30 percent. This is substantially above the returns on physical assets and, just as telling, above the firm's cost of capital even after accounting for the relatively high risk of R & D."
8. Managers often fly blind when they invest in intangibles. They have only a vague idea of the kind of returns intangibles provide. Very few companies have clear-cut answers to questions like "should we increase or decrease R & D spending?" or "should we increase or decrease adspend?" or "should we develop technology in-house or acquire it from outside?" Surprisingly, managers don't have the information because GAAP doesn't require companies to report such information. Thanks to such information brownout, managers often rely on *ad hoc* methods when they invest in intangibles.
9. An intangible-intensive company depends heavily on the vision, ideas, drive, technical capabilities, and business acumen of its key executives, particularly in its formative stages.

In traditional sectors like steel, aluminium, chemicals, petrochemicals, and automobiles the law of diminishing marginal returns on investments seems to apply. Not so in knowledge-intensive parts of the economy like computers, telecommunications, and pharmaceuticals. While these sectors require large investments in R & D, incremental manufacturing activity is relatively cheap, making it possible to achieve increasing – rather than decreasing returns. In such a system, if a product gets ahead by design or chance it tends to stay ahead. The dominance of VHS technology over beta technology is a good example of this kind of economic Darwinism. While making investments in such sectors the usual question 'What is the expected internal rate of return on the investment?' needs to be replaced by the question 'If the investment is made today, will it create new opportunities, learning possibilities, or other advantages in future?'

Implications for Financial Management

The implications of the above characteristics or features of intangible assets or intangible-intensive firms for financial management are as follows:

1. An intangible-intensive business is a high risk-high return proposition. The rewards for success are enormous and the penalties for failure are severe. While the risk associated with intangibles is substantially higher than that associated with physical and financial assets, risk is not necessarily bad. As option pricing models tell us, risk (volatility) creates value if the downside loss is limited. By properly managing the options embedded in intangibles a firm can leverage the higher risk of intangibles into substantial value.
2. The hazy property rights associated with most intangible assets poses a considerable challenge. Exploiting the potential of a machine is a fairly manageable proposition but using fully the knowledge, expertise, and talent of employees and the patents, trademarks, and copyrights owned by the company is far more challenging. This requires a special flair for knowledge management, the ability to extract maximal benefits from one's own innovations and exploit fully the knowledge of others (within the boundaries of law).
3. Since a very large portion of the value of intangible-intensive business reflects future growth expectations, managers of such a business must constantly strive to convert the potential value into actual value and invest judiciously to replenish and enhance intangible or knowledge assets.

To ensure that an intangible-intensive firm delivers on its growth expectation, its organisational architecture must promote decentralisation, encourage cooperative endeavour, and sharpen accountability. Managers in an intangible-intensive business have to cope with a rapidly changing environment. They have to be adequately empowered and sufficiently incentivised so that they can realise the potential of such business. Bureaucratic set ups are an anathema for managers in such a business.

4. An intangible-intensive firm has to rely primarily on equity financing for the following reasons:
 - The business risk of such a firm is high and it is unwise to add financial risk by employing debt finance.
 - Lenders are typically averse to grant loans against intangible assets. They normally insist on security in the form of tangible assets.
 - Intangible-intensive firms have valuable growth options. Such firms need greater financial flexibility.

Since raising external equity financing may not always be feasible or desirable, intangible-intensive firms would do well to rely as much as they can on retained earnings.

5. As investors have difficulty in figuring out the real worth of an intangible-intensive firm, meaningful investor communication is particularly important for such a firm. The firm should communicate its value chain. Baruch Lev defines value chain as follows: "By value chain, I mean the fundamental economic process of innovation...that starts with the discovery of new products or services or processes, proceeds through the development phase of these discoveries and the establishment of technological feasibility, and culminates in the commercialisation of the new products or services".

Thus the three central challenges for financial management in an intangible-intensive firm are:

- How to manage effectively a portfolio of real options and how to exploit fully the knowledge base of the firm?
 - How to design an organisation architecture that facilitates decentralisation, encourages cooperative endeavour, provides suitable incentives, and sharpens accountability?
 - How to communicate meaningfully with equity investors so that they become informed investors who understand the intrinsic value of the firm?
6. In order to ensure the sustained commitment of its key executives in its formative stages, an intangible – intensive firm may have to offer them substantial equity in the company. One way to do is to offer sweat equity, which refers to the shares given to a company’s employees or directors at a substantial discount or for a consideration other than cash for providing knowhow and other inputs. According to the Indian law, sweat equity issued during a year should not exceed 15 percent of the total paid-up capital of the company or a value of Rs.5 crore, whichever is higher. Further, a company cannot issue sweat equity before completing one year of incorporation. The price of sweat equity has to be determined by an independent valuer. The issue of sweat equity should be approved by shareholders by means of a special resolution.

Different Categories of Business

Businesses may be classified into three broad categories viz., physical, service, and knowledge.

Physical companies depend mainly on tangible assets such as land, buildings, plants, machineries, inventories, warehouses, and showrooms to create value. Steel, paper, chemicals, automobiles, retailing, and hospitality are examples of physical companies.

Service companies generally provide service on a one-to-one basis. Examples: banks, consultancy firms, IT services firms and advertising agencies. People are the primary source of advantage in service companies.

Knowledge companies use intellectual capital to develop products and then reproduce then over and over. Software, pharmaceuticals, and music are conspicuous examples. In order to cope with shifting consumer tastes and product obsolescence, knowledge companies must focus on constant improvement of existing products and creation of new products.

2. PSYCHOGRAPHIC MODELS

Psychographic models seek to classify individuals according to certain characteristics, tendencies, or behaviours. They are helpful in understanding risk tolerance and developing investment strategy.

Many psychographic models have been proposed. We will discuss two such models, viz., the Barnewell two-way model and the Bailard, Biehl, and Kaiser five-way model.

Barnewell Two-Way Model

One of the oldest and most popular psychographic models was developed by M.M. Barnewell⁵ to improve the interface of investment advisors with clients. Barnewell made a distinction between two relatively simple investor types, viz., passive investors and active investors.

Passive Investors As Barnewell notes: “Passive investors are defined as those investors who have become wealthy passively – for example, by inheritance or by risking the capital of others rather than risking their own capital”

According to Barnewell: (a) Passive investors have lesser tolerance for risk and greater need for security. (b) The smaller the economic resources of the person, the greater the likelihood that the person will be a passive investor. (c) Certain occupational groups tend to be passive investors (these include corporate managers, lawyers working for large regional firms, CPAs working with large CPA firms, medical and dental non-surgeons, politicians, bankers, journalists, individuals who have inherited wealth, and small business owners who have inherited the business). (d) A large proportion of the middle and lower socioeconomic classes are passive investors.

Active Investors Barnewell notes: “Active investors are defined as those individuals who have earned their own wealth in their lifetimes. They have been actively involved in the wealth creation, and they have risked their own capital in achieving their wealth objectives.”

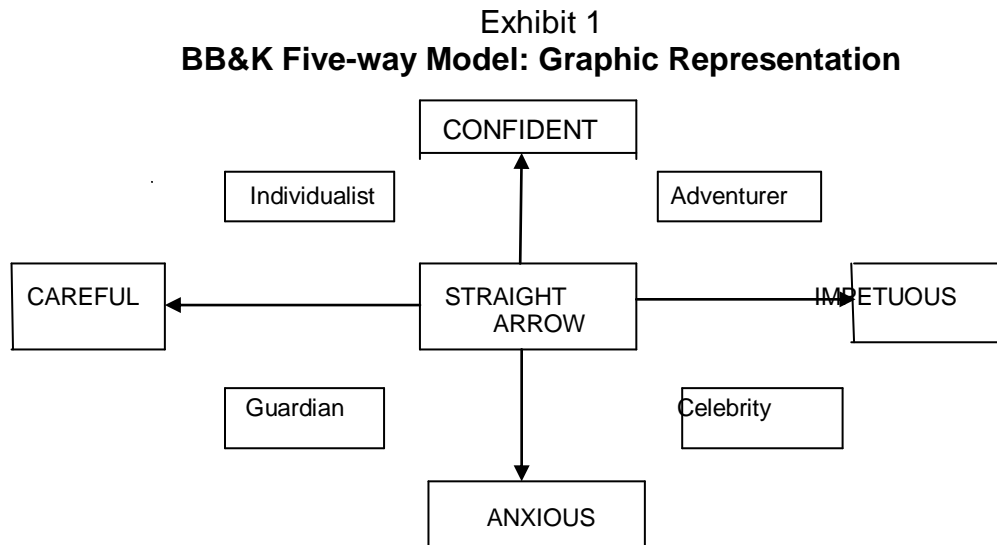
According to Barnewell: (a) Active investors have a high tolerance for risk and a lesser need for security. (b) Active investors prefer to control their investments. They cull vast amounts of information about their investments and expect a great deal from their investment managers. (c) By their active involvement, they believe that they can reduce risk to an acceptable level. Indeed, if they participate in an aggressive investment over which they do not have control, their risk tolerance declines quickly.

Barnewell suggests that a simple non-intrusive overview of the investor’s personal history and career profile can provide the context for portfolio design and suggest the pitfalls that can be avoided in building an advisory relationship.

⁵ M. Barnewall, “Psychological Characteristics of the Individual Investor,” in *Asset Allocation for the Individual Investor*, ed. William Droms (Charlottesville, VA: Institute of Chartered Financial Analysts, 1987).

Bailard, Biehl, and Kaiser (BB&K) Five-Way Model

The BB&K classifies investor personalities along two dimensions viz., level of confidence and method of action. BB&K provide a graphic representation of their model (shown in Exhibit 1) and explain#:



Source: Thomas Bailard, David Biehl, and Ronald Kaiser, *Personal Money Management*, 5th ed. (Chicago Science Research Associates, 1986).

The first aspect of personality deals with how confidently the investor approaches life, regardless of whether it is his approach to his career, his health, his money. These are important emotional choices, and they are dictated by how confident the investor is about some things or how much he tends to worry about them. The second element deals with whether the investor is methodical, careful, and analytical in his approach to life or whether he is emotional, intuitive, and impetuous. These two elements can be thought of as two 'axes' of individual psychology; one axis is called 'confident-anxious' and the other is called the "careful-impetuous" axis.

The BB&K model identifies five investor personality types which are described below in their own words.

The Adventurer People who are willing to put it all on one bet and go for it because they have confidence. They are difficult to advise, because they have their own ideas about investing. They are willing to take risks, and they are volatile clients from an investment counsel point of view.

The Celebrity These people like to be where the action is. They are afraid of being left out. They really do not have their own ideas about investments. They may have their

own ideas about other things in life, but not investing. As a result they are the best prey for maximum broker turnover.

The Individualist These people tend to go their own way and are typified by the small business person or an independent professional, such as a lawyer, CPA, or engineer. These are people who are trying to make their own decisions in life, carefully going about things, having a certain degree of confidence about them, but also being careful, methodical, and analytical. These are clients whom everyone is looking for – rational investors with whom the portfolio manager can talk sense.

The Guardian Typically as people get older and begin considering retirement, they approach this personality profile. They are careful and a little bit worried about their money. They recognize that they face a limited earning time span and have to preserve their assets. They are definitely not interested in volatility or excitement. Guardians lack confidence in their ability to forecast the future or to understand where to put money, so they look for guidance.

The Straight Arrow These people are so well balanced, they cannot be placed in any specific quadrant, so they fall near the center. On average this group of clients is the average investor, a relatively balanced composite of each of the other four investor types, and by implication a group willing to be exposed to medium amounts of risk.

3. FAMILY MANAGED BUSINESSES (FMBs)

Indian FMBs have transformed themselves to meet the challenges of liberalisation. Whether you look at the house of Tatas or Birlas or Ambanis or Mahindras or Bajajs or Thapars and many others you find that FMBs have adapted themselves remarkably well to the transition from a controlled economy to a liberalized economy. Many observers of the Indian business scene did not expect this to happen. There was a concern that FMBs, which typically experience stress in the third or fourth generation or so would disintegrate in the wake of liberalisation. On the contrary FMBs have reinvented themselves and shown remarkable vitality and vigour. It has been one of the fortuitous consequences of reforms.

Historically, FMBs were beset with two shortcomings. First, interests of the family were poorly aligned with those of minority shareholders. A low growth and high tax environment provided strong incentives for tunneling. Second, top positions were reserved for family members, irrespective of their merit. So competent professionals shunned FMBs.

Several things have happened in the new environment which have mitigated these shortcomings:

- The high growth, low tax environment has motivated FMBs to align better the interests of the controlling family and minority shareholders. To achieve higher growth FMBs have tapped capital markets and focused more on enhancing market value.
- FMBs have put a lot of emphasis on education and training of the younger generation and allowed them to take over. Simultaneously, thanks to the growing size, complexity, diversity, and globalisation of their business, they have given professionals greater responsibility and autonomy along with matching compensation levels. The thrust of the controlling family is more on strategy, capital allocation, and talent management with professionals being given greater operations. freedom.

Professionally managed firms seem to deliver better performance where institutional shareholders demand performance and there is an active market for corporate control.

In India neither of these conditions obtain. At present, the large shareholding of the controlling family induces better alignment of the interests of the family and minority shareholders. Further, myopic thinking which is the bane of professionally run firms everywhere is not a problem in FMBs as they naturally are interested in long-term value creation. It appears that FMBs will stay.

SNIPPETS

BOTTOM LINE ON MARKET EFFICIENCY

What is the bottom line on market efficiency ? Jay Ritter suggests that it is useful to classify events into two categories – high-frequency events and low-frequency events. High-frequency events occur often and the market is efficient with respect to them. That is why it is hard to identify a trading strategy which is reliably profitable and mutual funds have difficulty in outperforming their benchmarks.

Low frequency events occur infrequently and the market seems to be inefficient with respect to them. Here are some examples of massive mispricing:

- The stock price and land price bubble of Japan in the 1980s
- The stock market crash of October 1987.
- The TMT (technology, media, and telecom) bubble of 1999 – 2000.

GE's BUSINESS MODEL

GE is a large, complex, global enterprise. Its main businesses are energy business (gas turbines, wind turbines, heavy equipment for compression and distribution of oil and gas products, and water business), health care business (CAT scanners, MRI equipments, X-ray, ultrasound and so on), aviation business (aircraft engines), locomotive business, and financial services business.

GE's business model across these different businesses is to invest heavily in technology that enables it to win orders for large equipments which provides the base for services. As Keith Sherin, GE's CFP puts it. "So, it's sort of like the combination of razors and blades in Gillette's business. We don't make a lot of money selling an aircraft engine. But over the next 35 years, we will make good money providing the spare parts for that business. He continues "We provide these after-market services to help our

customers maintain their productivity. In fact, as part of our sales of equipment and services, we often guarantee improvements in our customers operating results.”

THRESHOLD LIMITS FOR THE EXERCISE OF CONTROL

The percentage of shareholding to be acquired is an important consideration under the Companies Act, there are different threshold limits for the exercise of control.

- Shareholding of 10 percent enables the shareholders to claim protection from the Court in claims for oppression of the minority.
- Shareholding in excess of 25 percent gives shareholders the power to block special resolutions.
- Shareholding in excess of 50 percent gives shareholders the power to pass ordinary resolutions.
- Shareholding in excess of 75 percent gives shareholders the power to pass special resolutions.

Obviously, the premium attached to each of the above threshold limits would necessarily be different.

WIT AND WISDOM

HUMOUR

1. In a curio shop in Egypt, there were two skulls on the shelf, one large and one small. A foreign tourist, pointing toward the large skull, asked the shopkeeper “whose skull is this ?” The shopkeeper replied, “That is Cleopatra’s.” Pointing toward the smaller skull, the foreign tourist asked, “whose skull is that ?” The shopkeeper coolly said, “That is also Cleopatra’s”. The tourist queried, “How can that also be Cleopatra’s?” The shopkeeper explained, “That is the skull of Cleopatra as a child.”
2. Alexander the Great, Julius Caesar, and Napoleon were watching a military parade in Moscow. Impressed by the tanks, Alexander said, “If I had chariots like these, I would have easily conquered the whole of Asia.” Fascinated by the missiles, Julius Caesar remarked, “If I had arrows like these, I would have ruled the world.” Intrigued by the Pravda newspaper, Napoleon observed, “If we had newspapers like this, no one would have ever heard of Waterloo.

WISE SAWS

- Real joy comes not from ease or riches or from the praise of men, but from doing something worthwhile.

W.T. Genfet

- The longest journey begins with a single step
- He who generalizes generally lies

R. Milkoff

PERSPECTIVE

Consider how the universe appears to any man, however wise, who has never heard one word of what science has discovered. To him the earth is flat, the sun is a shining object of small size that pops up daily above an eastern rim, moves through the upper air and sinks below the western edge. The sky is an inverted bowl of blue material. The solar system has no meaning. Bodies do not fall because of any law of gravitation. Blood does not circulate nor the heart pumps. Cooling is not the removal of heat but addition of cold. Leaves are green due to some greenness.

B.L. Whorf
Language Mind & Reality