

Economist¹ (2018): Competition Theory—The Forgotten Theory of Incomplete Competition

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From Schumpeter to Contemporary Writers

Economic integration and globalization are mega-trends of the world economy. Economic decision-making is devolving downwards to sub-national units. At the same time, some part of this power has also moved upwards to multiregional organizations, e.g. the EU, due to integration. Knowledge intensive regions, e.g. Silicon Valley or New York in the U.S., are winners of the global agglomeration economies. They are often the hosts of MNC headquarters. The growth of MNCs in number has been remarkable, from 7,000 in 1969 to 100,000 in 2014 (UNCTAD). In the 1960s, MNCs were perceived as big and bad. Today, MNCs are a part of their host nations export capacity and technology assets. Their economies of scale depend on the size of capacity and speed (or intensity) with which it is utilized. Ricardo's comparative advantage is the key concept in international trade. Since the 1990s, when the WTO was established, the industrialized countries oriented towards Smith's absolute advantage. An indicator of that is the rapid adoption of Porter's cluster concept (Coleman, 1980), which refers to that fact that the home country of the cluster tries to domesticate the cluster elements by a hidden mercantilism (Porter, 1990).

Schumpeter (1934) distinguished innovation as the main function of entrepreneurship. Schumpeter (1939) referred to the fundamental problem of economic change. In the face of a keen competition, entrepreneurs are obliged to innovate, which is a source of economic growth. Schumpeter gave economists food for thought with the concept of creative destruction (1942). Schumpeter was well aware of the monopolistic power of big firms. He predicted the transition from the competitive capitalism to the trustified capitalism. Schumpeter himself believed that the free market capitalism is the best economic system. John Galbraith completed Schumpeter's prediction of corporatism. He launched as a parallel concept to trustified capitalism. He believed that large firms have the countervailing power (Galbraith, 1956) that describes a certain level of collusion between large firms and the government. Schumpeter and Galbraith were both worried about the fact that the so-called static economic efficiency was a barrier to innovate.

MNCs that operate globally in all markets (goods, services, financing, IPRs², etc.) dominate the international trade of commodities. There are rational reasons for that. The main reason is the large economies of scale available in global markets. Another reason is the evolution of institutions that protect intellectual properties in global context. MNCs have invested in countries like China, owing to impressive economic growth rates. Today, the paradox is

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¹ The Economist, Nov. 15th 2018: Competition: The next capitalist revolution. Market power lies behind many economic ills. Time to restore competition <https://www.economist.com/printedition/2018-11-17>.

² IPR = Immaterial Property Right.

that MNCs are professional in marketing and in-house R&D when marketing and R&D are the major handicaps of entrepreneurs. The idea of Schumpeter was: Creative destruction creates economic discontinuities, an environment, in which entrepreneurs are able to earn (temporary) monopoly profit by the introduction of innovations. As Economist (2018) found, the Schumpeterian revolution is going on: “Across the West powerful, profitable firms are becoming even more powerful and profitable”—and they are main drivers of market dynamism and monopoly power.

The revolution of information and communication technologies (ICTs) has been the main source of Schumpeterian innovations in the West. Techno-giants are powerful players of the most competitive clusters in the U.S. As Economist (2018) reports, “in Europe regulators are angry with Silicon Valley”. The reason for that is that monopoly power may make for the Silicon Valley giants, e.g. Amazon, Apple, Google, Facebook, and Microsoft, possible to control ICT-markets. The giants have about eight billion customers on their platforms. They have fully monopolized the valuable “big data”, which bind their partners and customers. Without a series of studies, it is not possible to access to what extent they are abusing their customers. What is known is that they are doing excellent business with their platforms. Some of these giants, e.g. Apple, Facebook, and Google, are dependent on Internet services as a main source of revenue, which increases vulnerability.

Some funds hold large stakes in competing companies. Economist (2018) do not report evidences of a “conspiracy”. On the other hand, fund managers do not encourage a price competition, which is the main criterion for competition laws that competition is workable. Techno-giants are able but perhaps not willing to lower prices as they innovate. The U.S., techno-giants expand into new areas and may revolutionize them. Alexa Amazon or Apple Siri are of interest to consumers because they can handle shopping online and help e.g. older people in many ways. Applications store spoken information. This can revolutionize the market because Amazon and Apple have access to “secret” customers’ purchasing information. As Economist remarks, they do not need to make mutual cartels to obtain market information. They receive information directly from their consumers. As Economist thinks, it is necessary to create search engines and social media that guarantee consumer privacy. Amazon sells 353 million products, about 3,500 times more than a typical commercial competitor. Amazon may further expand its supply. What is important to notice is that Amazon seems to have consumers’ loyalty on its side. Diversity of supply signals quality.

The issue is market concentration, which since 1997 has risen in two-thirds of the U.S. industries. In a tenth of the economy, four firms control more than two-thirds of the market. In a healthy economy, the free cash flow of stock companies is 76% above its 50-year average, relative to GDP. In Europe, the trend is parallel. The average market share of the biggest four firms (the most commonly used indicator of market concentration) in each industry has risen by three percentage points since 2000. In America and Europe, dominant firms are harder to beat. As Economist calculates, the global pool of abnormal profits is \$660bn. More than two-thirds of that is made in the U.S., one-third of that in technology firm. Europe’s share of abnormal profits is the second largest, 26%. Since 1978, the profits of U.S. listed companies (free cash flow + mutual fund assets) have more than doubled from 1.9% to 4.5% of GDP. Monopolization is the feature of the Atlantic community³. The West seems to tolerate abnormal profits when profits are distributed in a way that satisfies national interests.

³ Industry Concentration in Europe and North America by M. Bajgar, G. Berlingieri, S. Calligaris, C. Criscuolo, J. Timmis. OECD, 2018.

Techno-giants account for the biggest share of R&D in the emerging revolutionary technologies around artificial intelligence. In terms of Schumpeter (1942), they are the building block of national innovation systems. The “hated” Silicon Valley giants invest in innovations and, generate growth. This is what the stock markets highly appreciate. At present, one-half of the 10 leading brands are platform giants, among others Apple, Google, and Facebook. They are the main source of market dynamics. Techno-giants are geographically concentrated in clusters that are an important source of international specialization and trade. The top scientists live in the regions occupied by the dynamic techno-giants. In the same way, the triad of New York, London, and Tokyo dominates global financial services and other related services. Krugman (1998) made the summary of the centripetal agglomeration economies that are relevant in the global economy (Krugman, 1998):

(1) Market-size effect—A large local market creates demand and cost linkages. An example is the services industry, clients and ancillary services concentrated in New York.

(2) Thick labor markets—A local concentration supports the specialized skills and spatial externalities.

(3) Pure external economies—A local concentration of economic activity creates pure external economies through information spillovers.

Urban ghettos in California are parts of the famous Silicon Valley production system (Kolko, 2001; Saxenian, 1994), which includes the engineering laboratories at Stanford and the military R&D facilities. In the U.S., the main reason for the clustering around universities is the availability of government-funded technology that is the catalyst of agglomeration economies in science-based industries. Geographical proximity around university campuses generates increasing returns to knowledge (Krugman, 1979). The Stanford University has contributed to the emergence of the most famous regional cluster, namely Silicon Valley. The main argument for that is that post-invention development costs far exceed pre-invention R&D costs (Haour, 2004), and inventors are not willing to make risk investment without some substantial protection from competition (Schumpeter, 1942). Two acts in the U.S. are far from the view that research results are parts of a growing corpus of science:

(1) The Bayh-Dole Act (DBA), enacted in 1981, provides the top universities the first right to commercialize patents, and, if they fail in that, the Federal Government retains the ownership of patents and then can grant non-exclusive licenses to interested third parties.

(2) The Stevenson-Wydler Technology Innovation Act, enacted in 1980 enabled e.g. the NIH (National Institutes of Health) to enter into license agreements with private firms that utilize the technologies developed by research labs.

Many techno-industries endure the cooperation of large firms without compromising efficiency, as sharing knowledge inside the ecosystem such as Silicon Valley increases the common knowledge resources of all. Intensive exchange of knowledge leads to the increasing returns. The new (endogenous) growth theory assumes that the accumulation of scientific knowledge, accompanied by extensive external effects, will produce the best economic growth. In the U.S., Romer (1989; 1990) found that investing in product development, education, technology and market openness accelerates economic growth of the nation. The economic growth generated by innovations varies over time and between regions. Big metropolises like New York, London, or Tokyo are winners of innovativeness in global service industries. The great concern of the Economist magazine is how capitalism develops. The U.S. derailed as the investment bank's bubble burst. The worst case was the collapse of big US financial institutions in 2008.

Milton Friedman was the father of the Chicago School's Monetarism. From the 1960s to the 1980s, he propagated the neoliberal idea that even big firm giants are efficient in the concentrated industries. He succeeded in his campaigns. In the U.S. financial market, the share of financial assets held by the 10 largest U.S. financial institutions increased in three decades from 10% to 50%. In 2007, 15 big U.S. financial institutions that had once been Wall Street's success stories had underwritten derivatives with the gross notional value of \$216 trillion (Ferguson, 2009). When Lehman Brothers collapsed in 2008, the huge amount of taxpayer bailouts was used to shore up the U.S. financial giants⁴. This was a Pyrrhic victory. The loose monetary policy by the FED led to the speculative boom. As the scientist, Friedman supported the neoclassical idea of efficiency. As the advisor of the U.S. president Reagan, his view was "money talks". As Krugman wrote, the crisis was a result of the anti-competitive behaviour of financial institutions in the U.S. (Krugman, 2010) and a market failure.

In the U.S. financial market, the cluster of the Wall Street's gigantic conglomerates was not the "permanent" success story of clustering as Porter (1990) claimed. In comparison to that catastrophe, the U.S. techno-giants are "good citizens". Google and Facebook provide popular services at no cost to consumers. However, if profits in America would be in the historically normal levels, and private sector workers would get the benefits, real wages would rise by 6%. Consumers would have greater choice. Productivity would rise. As Economist (2018) noticed, a radical competition revolution would do much to restore the public's faith in capitalism. This the clue of Schumpeter (1942). Chandler (1962; 1990; 1997) compared the history of corporate capitalism in the U.S., Britain, and Germany. He noticed that in the U.S., large vertically integrated corporations emerged in the end of the 19th century to replace the fragmented structure of production and distribution. The vertically integrated managerial hierarchies persisted in the U.S. manufacturing since it is the famous "American method" to maintain the efficient scale of operations.

Techno-giants utilize the optimal scale of global platforms. Besides that, they rely on scope (Chandler, 1990). They economize their extended scope of big data resources through networking. This is the external economies of scope, which depend on a firm's resources and management efficiency, as Alfred Marshall⁵ (Cambridge) wrote in the early 20th century. The techno-giants have succeeded in integrating three forms of "assets" (social, knowledge/technology, and money) into their disruptive business models. Many EU countries have stagnated since their small and medium-sized firms have not succeeded in innovating new business models. Many glorious company stories are now merely historical incidences. In the US, Germany, or China, there are ambitious mid-sized companies. For instance, Finland has the Bigness Complex (Adams & Brock, 2004). Finland is dependent on big export firms, and cannot utilize fully its intellectual capacity, including IPRs. Finland has a growing population of internet-based start-ups utilizing Finland's high internet penetration and a rich supply of ICT-technologies from the U.S. and the Asian techno-giants.

Competition—A More Analytical View

Competition arises from the scarcity of economic resources. Classical economists, e.g. Smith (1976) and Ricardo (2011), did not need a precise definition of competition because they viewed monopoly as exceptional.

⁴ The Economist (2013) The origins of the financial crisis: Crash course, 7 Sep. 2013. <http://www.economist.com/news/schoolsbrief/21584534-effects-financial-crisis-are-still-being-felt-five-years-articlebeen>
Harvard Business Review (September 2014, p. 20): "The financial sector's power has grown in the few decades, and the legislation has failed to keep it in check..."

⁵ http://en.wikipedia.org/wiki/Pyrrhic_victory.

The perfect competition model emerged as the standard in studies of economics in the early 120th century when Leon Walras initiated the revolution of marginalism (Sandmo, 2011). Limitations of the model in dealing with real-world conditions are the reason for critics (Coase, 1960). Joseph Schumpeter was the member of the German Historical School of Economics. In 1911, he wrote his book *Theorie der wirtschaftlichen Entwicklung*. As the Harvard professor in 1932-1950, he published it in English. Schumpeter (1934) tried to introduce his concepts into the set-up of the Walras' system but found it difficult since economic evolution is usually a slow waveform process. Walras used the upward sloping parts of the average cost function, instead of the marginal cost function, as the supply curve of the firm that excluded the behavior of real firms out of his frame, as Schumpeter criticized.

Schumpeter (1942) introduced the concept of temporary monopoly profit as the lifeblood of innovativeness. The normal profit is not a satisfactory compensation of risk-taking under the so-called "true" uncertainty. Knight (1920), the founder of the institutional Chicago School wrote about that. His risk theory distinguishes between the objective probability (an event will happen) and, the immeasurable unknown (inability to predict e.g. the demand of a new product). Knight expected that an entrepreneur would make his profit in the market with immeasurable unknown or true uncertainty. Schumpeter and Knight identified the timeless function of entrepreneurship. In the early 20th century, Marshall (Cambridge) wrote his book *Principles of Economics*. Marshall exerted a great influence on the economic thought. Marshall was mainly concerned with theories of costs, value, and distribution. His important contribution was the concept of marginal utility. Marshall made a clear distinction between the internal and external economies of the firm. External economies of scale depend on a firm's adaptation to its markets while internal economies of scope depend on a firm's resources and management efficiency. For mainly methodical reasons, Marshall introduced into microeconomics the concept of representative firm. Marshall was the pioneer of managerial economics (Samuelson, 1947).

Schumpeter never denied the merits of Marshall (1920). As a Harvard professor, he referred to Marshall's representative firm concept that may hide the fundamental problem of economic change (Schumpeter, 1939). Instead, Schumpeter clearly distinguished his theory from the Walrasian process of adaptation. In the Walras' general equilibrium system, various economic agents (suppliers, consumers, etc.) are assumed to behave as rational optimizers. Schumpeter declares this an illusion. In his writings, an entrepreneur who introduces (radical) innovation is the hero of the drama (Lintunen, 2000). By contrast to the perfect rationality assumption by e.g. Walras and Marshall, Schumpeter gave much credit to the human agency. Schumpeter (1939) argued that entrepreneurs invest in (radical) innovations in the face of competition to achieve temporary monopoly profits and, thereby, entrepreneurs generate (irregular) economic growth.

Chamberlin (1957; 1965) and Robinson (1933) are the parents of the study of imperfect. They provided the building blocks for the Schumpeterian analysis of market dynamics. Robinson was a post-Keynesian economist known for her concept of monopsony. She analysed the theory of economic growth. Two students who studied under her guidance have won the Nobel Prize in Economics namely Amartya Sen and Joseph Stiglitz. Chamberlin acted in 1937-1967 as a professor of economics at the Harvard University. His contributed to the monopolistic competition theory. His product differentiation concept is parallel of Schumpeter's concept of innovation. Chamberlin's concept of market structure is characterized by competitive and monopoly elements. Chamberlin (1965) extended his analysis to competitive groups of firms.

Under monopolistic competition the equilibrium price is higher, and the volume of output probably (not necessarily) lower, than under perfect competition. Chamberlin argues that monopolistic competition needs not bring higher profits to the firm in a given industry. Instead, it may allow the existence of a larger number of firms to make normal profit. A combination of product differentiation and innovativeness is an entrepreneur's best competitive strategy against the market power of MNCs. The paradox is that MNCs are professional in marketing and in-house R&D, when marketing and R&D are the handicaps of entrepreneurs. Monopolistic competition is the type of competition in which many firms sell differentiated products that are not perfect substitutes in branding, quality, location, etc. Chamberlin's theory of monopolistic competition is the foundation of the marketing theory.

In order to provide consumers more quality a firm under monopolistic competition maintains spare capacities of production, marketing and R&D in the same way as oligopoly firms. This is risk taking for the quality of consumption, since a monopolistic firm takes the prices charged by its rivals as given and ignores the impact of its own prices on the prices of other firms (Day, 1992). An oligopoly firm affects the market prices by using market power. The theory of monopolistic competition by Chamberlin has contributed to the strategic marketing doctrine that combines the key elements of strategic management and marketing theories. According to the narrow definition, industries with market structures similar to monopolistic competition include e.g. clothing, shoes, and services in large cities. According to a broad definition, monopolistic competition includes besides consumer goods industries also most of the B2B-industries in international intra-industry trade. An interpretation of Chamberlin's analysis of competitive models is summarized in Figure 1.

In the global markets, most of firms differentiate their products and services. According to the author's view, 60% of firms follow the principles of monopolistic competition theory and modern marketing theories. The existence of economies of scale provides for various kinds of firms incentives to invest in international specialization and trade. This incentive may complement the explanatory power of differences in factor proportions, and may give rise to trade in the absence of such differences. Chamberlin tried to modernize the neoclassical theory. The Industrial Organization (IO) Economics is built on Chamberlin's model of monopolistic competition. In global markets, firms' offerings are often heterogeneous and differentiated the fact that Krugman (1979; 1980; 1991; 1995) intelligently analyzed in his writings about theories of trade and geography. The admission of economies of scale calls for an analysis based on a market structure that allows prices above marginal cost. The imperfectly competitive models (monopolistic competition and oligopoly) should be at the core in global market analyses.

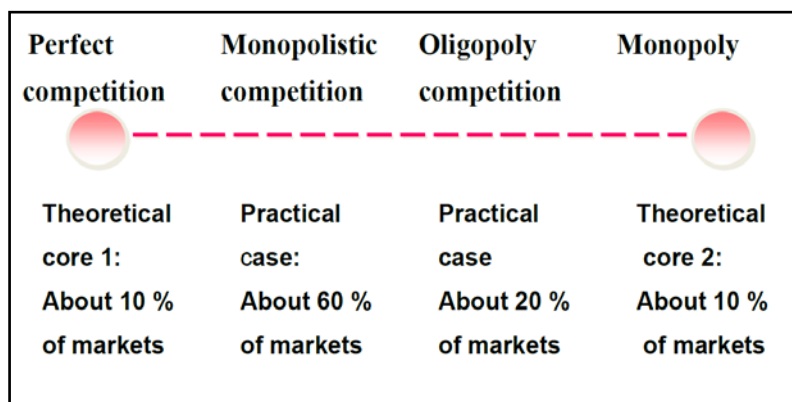


Figure 1. Competition and global markets.

The Structure-Conduct-Performance (SCP) Paradigm

The Structure-Conduct-Performance (SCP) paradigm is based on the ideas of Edward Chamberlin and Joan Robinson. Edward Mason was a professor at the Harvard in 1923-1969 and the U.S. government's adviser. Mason's (1957) important finding was: Market power is assumed to be positively related to profitability, i.e. the higher (lower) the market power the higher (lower) the profitability. In 1940, Joe Bain finished his doctoral dissertation at the Harvard under Schumpeter's direction. Bain (1951) analyzed the relation of market concentration (measure market power) and profitability. He found that the concentrated industries had a higher profitability than the fragmented ones. According to Bain (1956), there are three main entry barriers: economies of scale, product differentiation advantages, and cost advantages. Following the ideas of Chamberlin and Mason, Bain developed the first version of the SCP model of structure, conduct and performance (Mueller & Rauning, 1999).

Frederic Scherer is the Professor Emeritus in the John F. Kennedy School of Government at the Harvard. His post-doctoral research contributed to the economics of technological change, leading to numerous publications. He acted as one of the chief economists for the Federal Trade Commission. In 1970, he summarized the state of art of the SCP model in his book *Industrial Market Structure and Economic Performance* that is thought to be the best book of the SCP ever written. The SCP paradigm is grounded on the assumption that industry performance is determined by the linkage conduct and market structure. Scherer and Ross (1990) presented the relevant framework for the analyses of the SCP in Figure 2.

Scherer and Ross (1990) divided the economic environment into:

(1) Basic conditions—divided into demand and supply

Demand in economics refers to the willingness of a consumer to pay a given price for a given quantity of a good or a service. This reflects consumers' needs and desires subject to his or her budget constraint (income and prices) assuming the price of other possible goods. Some consumer markets, e.g. design markets, have cyclical trends. B2B-markets have a derived demand that depends on the primary markets. For example, the demand for steel is linked to the demand for manufactured products and to changes in the economic cycles. Price elasticity of demand is a measure used in economics to show the responsiveness of the quantity demanded of a good to a change in its price. Others are income elasticity and elasticity of substitution.

(2) Market structure

The term structure refers to an industry's market structure, measured by such factors as the number of sellers and buyers, entry and exit barriers, cost structures product differentiation, vertical integration and diversification. Basic conditions have a direct, short-term impact on market structure. The SCP paradigm was based on a series of empirical studies in the U.S. The key finding of the studies is: Market structure determines conduct; conduct determines performance. Today, the SCP model is complex in the real world (P. Ferguson & G. Ferguson, 1994). A common measure of structure is the firm size distribution. Firms will exert more market power when there are few firms in the market. In the most SCP research studies, the total market share of e.g. four or eight leading firms in the market is used as the industry concentration indicator. A market structure is affected by factors of basic conditions, such as technology, business culture and product durability and by governmental regulations, such as taxes and subsidies, international trade policies and price controls.

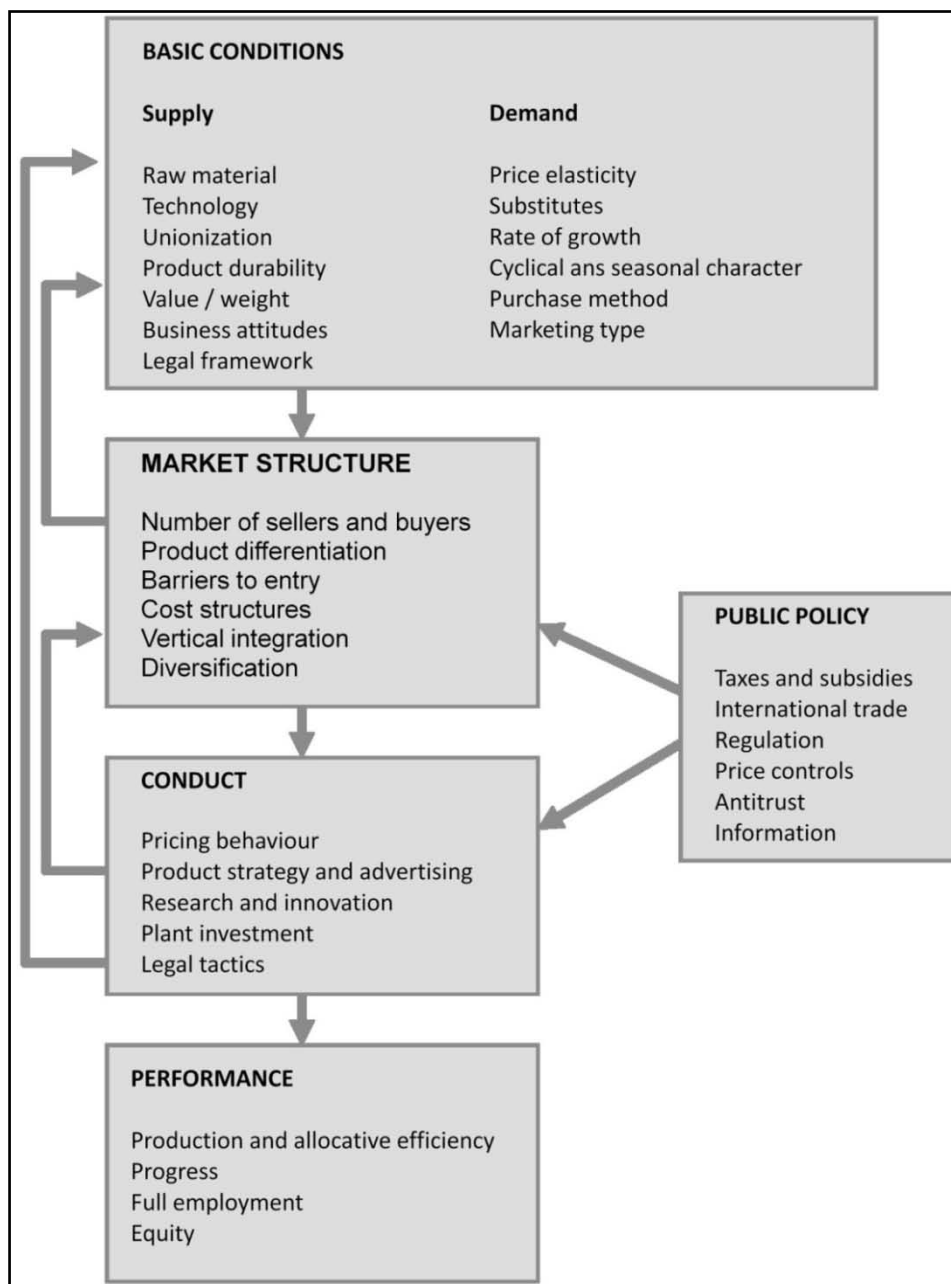


Figure 2. Scherer & Ross' (1990) SCP model.

(3) Conduct

Conduct refers to specific firm actions in an industry. Scherer's (1970) original model includes a broad list of conduct of variables. Scherer and Ross (1990) elaborated the list to include the elements of globalizing business environment, including pricing behavior, product strategy and advertising, R&D, plant investment and legal tactics. Attributes of industry structure define the range of conduct options for a firm. A firm needs to perceive to what extent it has a freedom of operations (Perloff, Karp, & Golan, 2007). In the neoclassical settings, the industry structure is supposed to determine a firm's conduct. In Chamberlin's monopolistic competition, firms face in the short run the downward sloping demand curve, and, therefore, firms are not price

takers but price setters. In the end, super-normal profits attract in new entrants, which shifts the demand curve for existing firms to the left. New entrants continue until only normal profit is available. The view that a “strategy” determines structure is absurd. This view was popular in the 1990s. The success of Nokia was interpreted so that Finnish managers can write their own success stories. Nokia’s history demonstrates clearly that market structures are more powerful than the best strategies/conducts.

(4) Performance

Performance factors of Scherer and Ross (1990) include such factors as price, production efficiency, allocative efficiency, equity, product quality, technical progress and profits. Today, the performance of an industry/a firm is measured primarily by profitability. In most cases, performance can be predicted by considering structural conditions of the market. Such conditions can provide sufficient information to predict how firms should behave. According to the neoclassical economics view (Stigler, 1968), firms generate, at best, returns that just cover their cost of capital in the long run, and the social welfare (as traditionally defined in economics) of a nation is maximized.

(5) Public policy

Public policy variables by Scherer and Ross (1990) include taxes and subsidies, international trade, regulation, price controls, antitrust and information that is a modern view. The SCP paradigm is used as a checklist for policymakers (Audretsch & Lehmann, 2006). The Chicago School has made its strongest contribution to the SCP by strongly criticizing government interventions that depend on the loosely demonstrated failures of market, such as the abuse of market power that can be temporary in nature and will be eliminated by the entry of more innovative firms.

The Harvard’s New IO Approach

In the 1970s, the Harvard Department of Economics, under the lead of Richard Caves, began to modify the IO model of structure and performance to include differing positions or strategic groups of firms within industries. Caves’ field of interest included such as competition policy and regulation, multinational corporations, market structure, intra-industry trade, and economics of the arts (Caves 1971; 1981; 1982; 1985; 2002). His contributed to economies of scale, competitiveness, trade patterns, and the IO of creative industries, including the visual and performing arts, movies, theatre, sound recordings, and book publishing (Caves, 2002). Relying on the neoclassical theory, Caves asked the three issues:

- (1) How market processes direct the activities of firms in meeting market demand?
- (2) How market processes are broken down to a firm level?
- (3) How these processes adjust to improve the economic performance of firms and industries?

Richard Caves’ implication was that Bain’s (1956) concept of entry barriers that dominate the IO analyses needed to be reassessed (de Jong & Shepherd, 2007). In terms of accelerating technology revolution, the concept of entry (exit) barriers is not any more relevant. An industry was earlier thought to be characterized by a relatively permanent production technology. The technology revolution has made it difficult to identify an industry’s boundaries since they are more mobile than static. Caves redefined entry barriers to mobility barriers. In the international markets, firms try to find out better positioning in-between industries (Caves & Porter, 1977). Mobility barriers are persistent structural features, not only at a firm level, but also at a strategic group level, that give rise to structural, asymmetric mobility barriers protecting a given strategic group from the entry of potential rivals and, thereby, permitting performance differences between groups and, hence, between firms.

The existence of mobility barriers means that some of strategic groups enjoy advantages over other groups. Mobility of firms inside or between strategic groups can lead to a structural change in the whole industry (McGee & Thomas, 1986).

John Galbraith's evolutionary view challenged the Chicago School (Galbraith, 1956; 1958; 1967; 1973) by claiming that the static economic efficiency is a barrier to innovate. Large firms grow because of technological imperative. Their size owes to economies of scale, large R&D budgets, and the unique ability to incorporate new technologies. As a Harvard professor in the 1970s, Galbraith motivated Richard Caves and others to modernize the Harvard IO as the key building block of economic analyses in the internationalizing world. This methodology selected by the Harvard's New IO approach is reasonable since the cross-sectional industrial databases are easy to use but not fully compatible with the dynamic nature of the SCP. Caves' IO program contained three dissertations:

(1) Hunt (1972) tested the strategic group concept. He used this term to describe the asymmetry amongst firms and explain the performance he observed in the strategies of firms of the U.S. white goods industry in the 1960s. This asymmetry resulted in four different strategic groups.

(2) Newman (1973) and Porter (1973) extended the analysis. The methodology used in these studies was a combination of cross-sectional industrial databases and econometrics. Porter's analysis of two strategic groups (leader and follower) was not statistically significant. However, Porter concluded that leader groups outperform followers.

The Purdue University IO Approach

There is another scientifically ambiguous tradition, associated with the Purdue University where Dan Schendel, together with Arnold Cooper, initiated the "brewing" studies, which explored empirical links between resource choices that was interpreted as a firm's strategy and performance (Rumelt, Schendel, & Teece, 1991). The Purdue approach conceptualizes strategic groups bottom-up. Firms with heterogeneous resource deployments are grouped into homogeneous groups. Firms are grouped, not because they are the same kind, but because they follow the same strategy yet differently (K. J. Hatten & M. L. Hatten, 1987). Caves' Harvard approach analyses strategic groups from top-down. The strategic choice approach by Purdue-studies (Hatten, 1974; Patton, 1976) assumes that systematic similarities and differences exist between firms because of strategic resource choices, i.e. decisions to invest in assets, which are often difficult and costly to imitate (McGee & Thomas, 1989). While the Harvard studies relied on the cross-sectional data in their analyses, Purdue-studies used time-series data in their longitudinal studies to draw valid inferences of the relationship between strategic group membership and performance differences. The Purdue studies focus on firms and their patterns of competition within one industry. A theoretical contribution was the use of many variables linked to strategy to identify strategic groups.

The bottom-up approach opened avenues to empirical studies (Cool & Schendel, 1987). An interesting result of the two dissertations (Hatten and Patton) was: In the strategic group of big brewing companies, the changes in market share and profitability over time were positively related but negatively related in the small firms' strategic group. This is an evidence of the oligopolistic market power of big firms. The Purdue-studies' bottom-up approach is suitable to firms in different size categories from large firms to small firms. Small firms cannot apply the IO determinism (structure determines strategy) as MNCs. Small firms can maintain their market positions only through internal economies of scope and through their entrepreneurial ability to

internalize the true uncertainty (Knight, 1920) in the markets. Strategic groups serve as reference groups or benchmarks, as the Purdue studies suggested. There are some empirical evidences of the success of mid-sized firms (Adams & Brock, 2004) with diverse demand and costs curves. The high market turbulence in the global markets provides market niches for mid-sized firms to conquer. This is an excellent foundation for their business strategies (Clifford & Cavanagh, 1985).

The Finnish IO Studies by the Aalto University

Relying on the Purdue-studies, Lahti (1983; 1989, 2005) initiated a rigorous theoretical and empirical analysis of the links between the SCP model elements. Lahti (1983) studies the strategic group membership and performance linkages which are explored in a whole industry composed of firms and in different size groups (small, medium sized and big) and performance models (high performers/innovator and low performers/conservative). Lahti's (1983) empirical study the knitwear industry from the 1960s to 1980s contained a sequential process of analyses:

(1) The history analysis was used to analyse the industry evolution from the 1960s to the 1980s in the period when Finland was integrated into international markets. During that time, Finland and its export industries were in the highly turbulent stage. Finland's integration to the EEC was the main reason for that. Three major areas of turbulence were production technologies, buyer demographics/socio-economics and logistics/distribution channels. The Finnish knitwear industry was in a trap because of the turbulence and the price competition in the EEC markets.

(2) Econometric model with time-series and cross-sectional data was used according to the methodological ideas of the Purdue-studies. The research database was collected from 13 firms and included a 13-year span (1969-1981).

(3) Five firm cases describe how these firms responded to the perceived turbulence in business environment. Researchers have showed that established mental maps lead managers to ignore contradictory data of the current state of a firm. In the same way, a strategic group structure maintains collective mental maps of managers. Some strategic group member firms acted as the revolutionary agent inside the strategic group structures that were in the radical transition.

Case analyses were a vital part of the bottom-up perspective since it was possible to understand the entrepreneurship in the turbulent basic conditions of markets. The 13 knitwear firms provide complete data divided into three strategic groups (big, medium-sized and small) according to their size (turnover) which seemed to be the most crucial element of strategic behaviour. The methodology was the same as used in the Purdue studies. The empirical study was conducted so that the systematic differences in the strategy and performance were analysed within each of the strategic groups (big, medium-sized and small). Because of innovative methodology, Lahti (1983) is one of the pioneering studies of the new IO in the substantive performance tradition within the strategic group literature (Table 1) (Pitt & Thomas, 1994).

In order to operationalize the firm level IO model, Lahti (1983) used a more robust conceptualization of the IO model elements following the guidelines the Purdue-studies (Lahti, 1983; 1989; 2005). The model links Opportunities (basic conditions and market structure) to Strategy (Conduct) to Performance in the within-industry approach. Learning was found to be the key driver to maintain innovativeness for firms according to the life cycles of innovations (Lawless, Bergh, & Wilsted, 1989). Lahti's model (Figure 3) is meant for benchmarking of SMEs (Fiegenbaum & Thomas, 1995).

Table 1

Studies Testing the Robustness of Groupings

	Prior classification was via:			
	“Substantive” measures of		“Perceptual” measures of	
	Structure/conduct	Performance	Group structures	Patterns of conduct
Within sector studies	Hunt (1972)	Lahti (1983) Johnson and Thomas (1987)	Dess and Davis (1984)	Dess and Davis (1984)
Acorss-sector studies	Harrigan (1980) Tushman and Anderson (1986)	Porter (1979) Newman (1973) Rumelt (1973) Tushman and Anderson (1986)	Snow and Hrebiniak (1980)	Snow and Hrebiniak (1980)

Source: Pit & Thomas (1994, p. 93).

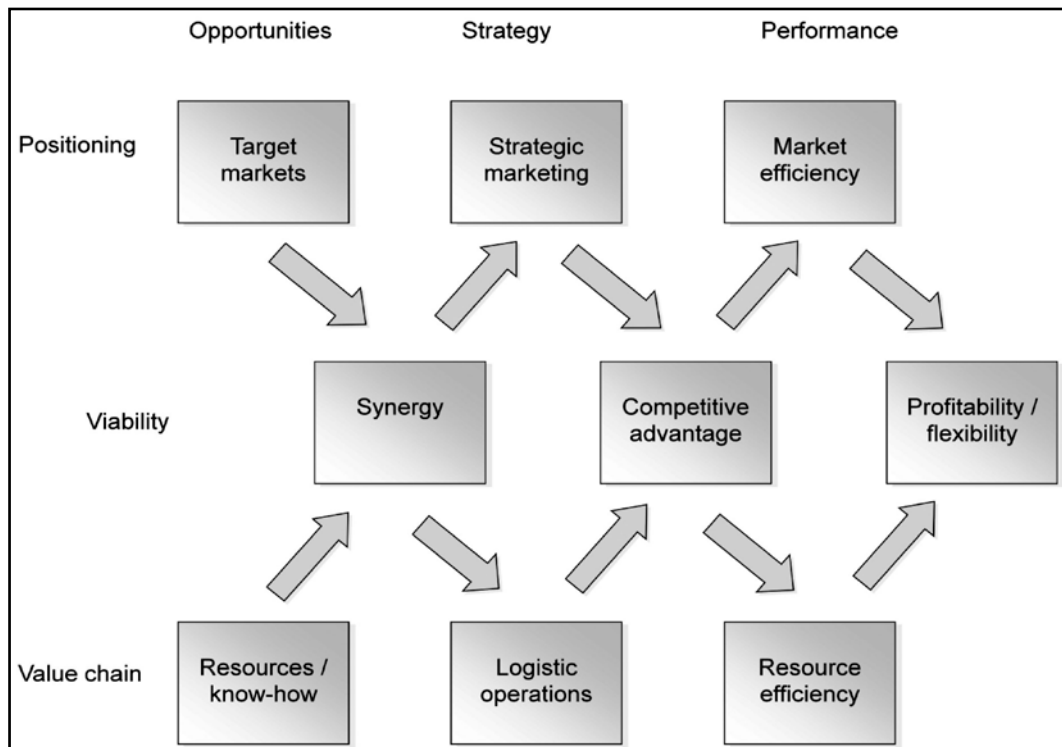


Figure 3. Lahti's model: Strategy-performance model.

There are many modifications of Lahti's framework model. Salimäki (2003) studied 13 leading design firms in Finland in the 90s. He positioned them into three strategic groups so that they construct an empirically grounded model of the mainstream strategy/conduct patterns of the internationalization of Finland's design industries in the 1990s. Killström (2005) developed his modification of Lahti's model that is called the Advanced Strategy-Performance model, ASP-model (Figure 4). This name refers to Killström's effort to develop further Lahti's model that is called the Strategy-Performance model. Killström has more detailed division of strategy making stages.

Luukkainen (2012) conducted his research for his doctoral dissertation at the Aalto University School of Business. He continued the theme of Salimäki (2003) and Killström (2005). In his dissertation, Luukkainen analysed the greenhouse sector in Finland as the target of empirical analysis. Luukkainen did a large empirical study of greenhouses. He collected a database in 121 greenhouse companies over 11 years (1998-2008).

Luukkainen combined many possible sources of data. He analysed carefully all financial statements by firms. Luukkainen analysed 11 annual financial statements of 121 firms. Together, he did 1,331 firm level analyses. In addition, he used production data from the target industry to estimate reliable time-series for all relevant factors of production function. In his study, the strategy process model was applied to the greenhouse sector that is undergoing a significant structural change.

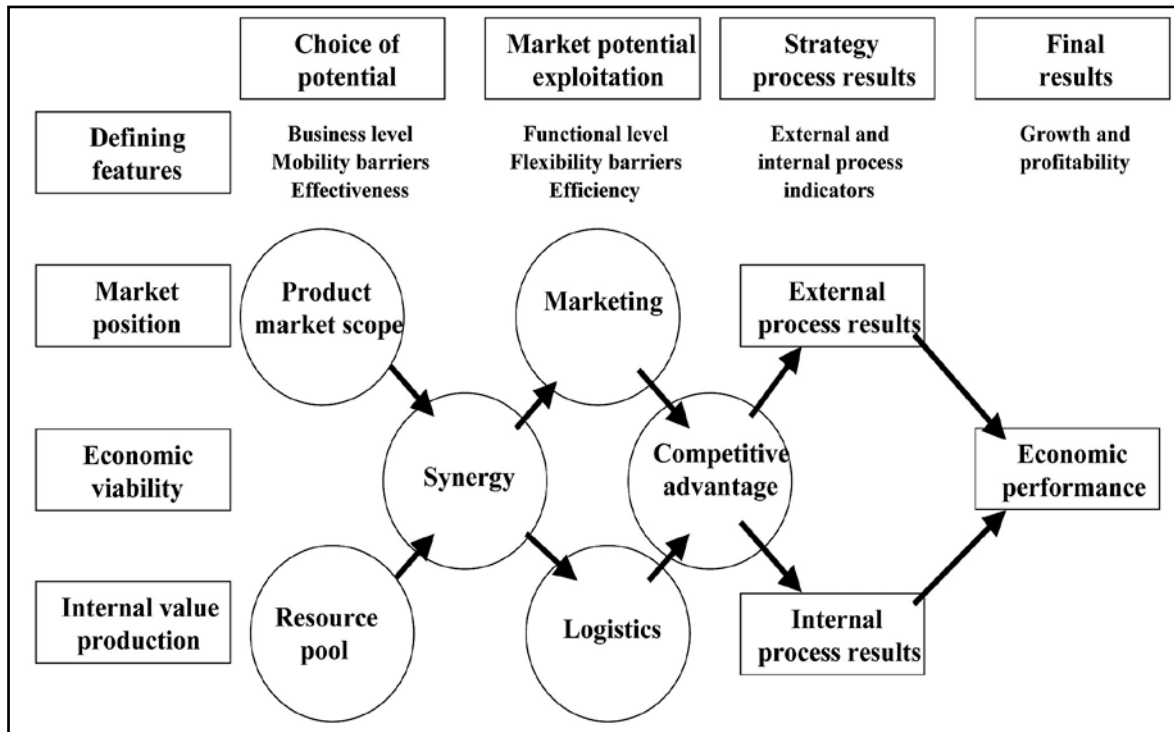


Figure 4. Killström's (2005) Advanced Strategy-Performance model.

Luukkainen developed a four-step model by which a firm can define its strategy by analysing its business environment and its field of operation. With the help of the simulation model, a firm can develop its competitiveness based on its own strengths. In contrast to previous studies, Luukkainen used his production function in the identification of strategic groups within the field of operation. These groups occupy a central position in the analysis of the industrial context. The production function was used to simulate the system dependency of different combinations of productive input and output factors. The price and the capacity utilisation ratio of productive inputs are crucial as a firm aims to achieve satisfactory economic result in its business environment. Luukkainen noticed that the profitability of the sector declined throughout the 11-year research period due to the import competition and to a simultaneous rapid increase in the production costs. The rapid increase in production potential in Finland has resulted in overproduction in the domestic market, and sufficient resources have not been channelled to the development of export. Luukkainen developed a detailed model of production. Luukkainen used his research database to estimate input-output-model.

The dilemma of the studies under the new IO is the methodology selected. Using solely cross-sectional data is not a correct approach since the "real" strategic groups are dynamic. The Finnish studies do not support the view that some firms consistently perform better than others within the same strategic group do. A high performance is temporary. In the most studies under the new IO, the performance contribution of a strategic

group to a firm's economic performance is weak. While mobility barriers can explain some of the performance differences among strategic groups and, among firms of different groups, performance differences exist among firms holding identical strategic positions within an industry (Carroll, Pandian, & Thomas, 1994). The strategic group concept and the bottom-up analysing method are used to identify the “real” strategy options. The content of strategy configurations identified is complex and so is the strategy process. The Finnish researchers (Lahti, Salimäki, Killström, and Luukkainen) had as their merits the long experience of industries under the investigations. The Finnish dissertations provide promising results of the notion that strategic groups are “real”, not artefacts. When small Finnish firms are concerned, the contribution of a strategic group to a firm level performance is going through the learning mechanism of group member firms, not through operative profit making as such.

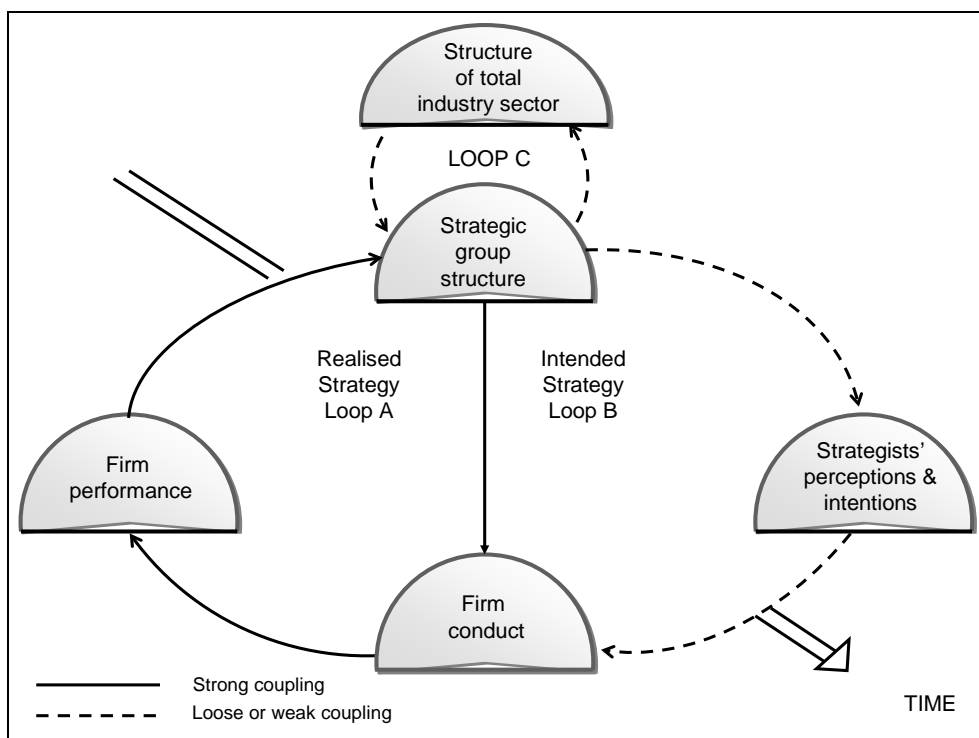


Figure 5. Enhanced Structure-Conduct-Performance (ESCP) model. Source: Pitt & Thomas (1994, p. 85).

The Enhanced Structure-Conduct-Performance (ESCP) model by Pitt and Thomas (1994, p. 85) is shown in Figure 5. The ESCP tries to model the complex, empirical reality. The orientation of early strategic group studies (Harvard and Purdue) has been “Realized strategy” in terms of Mintzberg (1980) (Loop A), although the patterns of “Strategic group structures” as the sub-elements of “Structure of total industry” are not studied carefully. Loop C links are relative weak in practice. Using ready-made databases and econometric models means that the “Strategic group structure” is historical in nature. There are feedback mechanisms from “Firm performance” to “Firm conduct” and to “Strategic group structure”. A firm’s performance outcome directly affects group structures subsequently; that is, variances in productive and allocation efficiencies produce differential long-run growth rates, potentially changing a firm’s postures and, ultimately, a strategic group composition. “Firm performance”, “Firm conduct”, and “Strategic group structure” are coupled (Loop B), as intended strategy in terms of Mintzberg (1980). Lacking systematic empirical evidence, Pitt and Thomas see

these links as weak and loosely coupled.

The Finnish dissertations provide important evidence of both the Loops A and B. Realized strategies that are estimated by econometric methods are difficult to interpret without knowing the perceptions and intentions of strategists. Therefore, the case and history analysis methods are useful parts of sequential analysis of strategic groups. When the Loops A and B are well integrated, it is possible to develop a simulation model that is important for practical business firms.

Mobility Barriers

An essential element of Caves' SCP re-engineering is to redefine the concept of entry barriers to mobility barriers. Bain's (1956) entry barriers were easy to identify and measure in any IO analysis, when mobility barriers are far from that. It is question of a relatively complex construct to any IO economist, who tries to draw implications on a possible monopoly power relying on the IO. McGee and Thomas (1986) collected lists of relevant mobility barriers. They divide mobility barriers into three distinct categories (Table 2).

Table 2

Sources of Mobility Barriers

Market-related strategies	Industry supply characteristics	Characteristics of firms
Product line	Economics of scale:	Ownership
User technologies	• production	Organization structure
Market segmentation	• marketing	Control systems
Distribution channels	• administration	Management skills
Brand names	Manufacturing processes	Boundaries of firms
Geographic coverage	R & D capability	• diversification
Selling systems	Marketing and distribution systems	• vertical integration
		Firm size
		Relationship with influence groups

Source: McGee & Thomas (1986).

Competition theory: What it is behind the ideologies?

George Stigler (1911-1991) was awarded the Nobel Prize in 1982 for his “fundamental contributions to the study of market processes and the analysis of the structure of industries”⁶. He was a professor of the Columbia University and the Chicago University (Stigler, 1968; 1976; 1978). He is known for his writings of public regulation. Interest groups use the regulatory power of government to shape laws and regulations in a way that is beneficial to them. Stigler's slogan “knowledge is power” signals the importance of subjecting information to economic analysis. Stigler (1968) urged economists to use neoclassical price-theory based on explicit, maximizing behaviour by firms rather than the SCP. Stigler's students dominate the neoclassical IO analyses when Chamberlin was the ancestor of marketing theory, commonly used in practical firms and industrial organizations (see de Jong & Shepherd, 2007).

Milton Friedman (1912-2006) was awarded the Nobel Prize in 1976 for his “achievements in the fields of consumption analysis, monetary history and theory and for his demonstration of the complexity of stabilization policy”⁷. Since the 1960s, Friedman started to promote an alternative macroeconomic policy to the Neo-Keynesian policy that is known as the Monetarism. Friedman became influential, when he acted as the adviser of the U.S. President Reagan. He extolled the virtues of a free market system with minimal intervention:

⁶ http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1982/stigler-facts.html.

⁷ http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1976/.

“market is always right” (Ebenstein, 2007) and “market exchange is an ethic in itself, capable of acting as a guide for all human action” (Harvey, 2005). As the defendant of the microeconomic orthodoxy, he claimed that monopolistic competition models are “analytically meaningless” (Friedman, 1953). In 1981-1989, Friedman built his cadre of economists that took the hegemony in the IMF and the World Bank in which the U.S. is the biggest shareholder. This led to massive privatizations in developing countries, which favoured capital investors and moved wealth from the bottom of society to the top.

The monopolistic competition theory was pushed out of the frames of microeconomics in the 1960s. The SCP did not fit with the dominant frames in economics (Keppler, 1998). The IT revolution parallel with rapid advances in the national accounting meant that economists had for the first time databases for econometric analyses. They were eager to test their models. Chamberlin challenged economists: Most of the economic situations are composites of both competition and monopoly, and that, wherever this is the case, a false view is given by neglecting either one of the two forces (1937; 1965). Monopolistic competition theory became the target of attacks, because Chamberlin highlighted the problematic nature of the neoclassical analysis that (1) relies on the use of mathematics in economic analyses, and (2) only accepts perfectly generalizable results in the empirical research.

Monopolistic competition was seen as a departure from the ideal of perfect competition (departure from Pareto optimality) that results in a loss of economic welfare. The fact is that monopolistic firms do not operate at the lowest point of its long run average costs. Chamberlin counterargument was: Monopolistic competition is welfare enhancing—not reducing since a society gets as much product diversity as it is willing to pay for (Bellante, 2004). Milton Friedman and George Stigler engaged in the critics against the Keynesian macroeconomics, and later, started to decline the innovations of Edward Chamberlin and his supporter Christopher Archibald over the comparative merits of monopolistic competition theory (Archibald, 1961). These was the most successful—and the most unfair—ideological campaign in the history of modern economics. Milton Friedman and George Stigler succeeded to devastate Edward Chamberlin’s international reputation since both were appreciated neoclassical economists.

What Were Edward Chamberlin’s International Merits?

Edward Chamberlin and Joan Robinson were the two pioneers of the modern study of imperfect competition (Chamberlin, 1933; Robinson, 1933). Chamberlin’s model was revolutionary. His concept of market structure is characterized by competitive and monopoly elements. That is the point that makes his contribution so important to the modern microeconomic theory. Chamberlin was not appreciated as the economist. When we look at the analysis of Economist (2018), we see the landscape of microeconomic analyses without Edward Chamberlin. The main hypothesis of the SCP is: the degree of seller concentration is inversely related to the degree of competition (Bain, 1956). Barriers to entry, e.g. economies of scale, are the sets of economic forces that create disadvantages to firms that attempt to enter the market. This is the reality today. The Chicago monetarism fully dominate the view of competition. As Economist (2018) reports, stock markets value even consumer-friendly entrants such as Netflix as if they too will become monopolies.

Something is wrong, if rising market power of giants helps to solve economic puzzles. Abnormal profits and low interest rates are a creasy set of neoliberalism. As Economist (2018) intelligently reports, the reason why stock-giants keep out even well funded newcomers. The high labor’s share of GDP is the core of Neo-Keynesian interventions that is used to moderate “boom and bust” cycles of economy (Keynes, 1936;

1989). For a half century, the labor's share of GDP has decreased in the U.S. This is the result of the Chicago campaigns. Monopoly prices allowed powerful firms to eat away at the purchasing power of wages. The labor share has fallen fastest in industries with growing concentration. The number of new entrants has been falling and productivity growth has been weak. In addition, there might be a lack of competitive pressure to innovate. The implication of Economist (2018) is: "Nevertheless, an economy composed of cozy incumbents will eventually see a collapse in innovation and hence a stagnation in living standards."

The Chicago School discounted the SCP, although it provides the realistic view to solve the profound crisis in competition theories (Colander, 2008). A paradox is that as the scientist, Friedman supported the idea of perfect market contestability (Friedman & Schwartz, 1971) but as the advisor of the US president Reagan, his view was simply "money talks". As Krugman (2009; 2010) has explained, the main reason for the global financial crisis was the anti-competitive behaviour of financial institutions in the U.S. This kind of huge market failure is the most striking evidence on the fact that the U.S. regulatory agencies should apply the logic of the SCP analysis. The SCP is the powerful analytical tool since it is straightforward in its identification of structural characteristics (Jones & Sufrin, 2010). Big data SCP analytics is a good alternative to the neoclassical economics. Firms invest in big data to derive insights from competition. As Malik (2006; 2013) has claimed, it would be necessary to have a thorough understanding of the systems dynamic to know more about the underlying empirical micro-processes. This is the key issue of competition theory.

Orthodox economists will not use dig data that is called a "fad" and its use was made fun of as an absurd practice in a satirical example on "pig data"⁸. The scientific basis for the Malik Management Systems® is a good combination of systems theory, cybernetics and bionics (Reips & Matzat, 2014). The use of big data is neglected because the core principles of "pure" science, such as how to collect a representative sample. Integration across databases of big data is challenging in terms of "objective truth" (Boyd & Crawford, 2012). The pattern-based strategy to model and analyse big data is a vital business skill (Mauro, Greco, & Grimaldi, 2012). Google has conquered the advertising world with nothing more than big data. Google's argument signals the ideology of techno-giants: "All models are wrong"⁹. What economic scientists can learn from Google? At least, the use of multivariate methods that probe for the latent structures of the market data. Factor or cluster analyses have proven useful as the analytic approach that goes beyond the bi-variate approaches typically employed with small data sets¹⁰. The Silicon Valley "Techno Empire" has its strength in the liberal use of multiple analytical tools. The "Neoliberal Empire" has been stacked in the "orthodox" methodology, econometrics.

Chamberlin's theory of monopolistic competition influenced greatly on the marketing theory. Marketers the U.S. held Chamberlin in such a high regard that the American Marketing Association awarded him the Paul D. Converse Award in 1953. Chamberlin's contribution is consumer choice, its connection to market prices and the theory of monopolistic competition, the foundations of marketing theory (Kotler & Keller, 2012). Chamberlin includes monopoly and competition elements in the same model. He argued that selling or advertising costs are not a part of the costs of production, but incurred to increase the sales of the product. They affect the demand curve of the product. Chamberlin's great idea was that, no matter how slight, any

⁸ <http://www.malik-management.com/en/malik-approach/cybernetics-systemics-bionics>.

⁹ Google's research director Peter Norvig claims: "All models are wrong, and increasingly you can succeed without them." Calude, Cr. Editor (2015). The Human Face of Computing, Amazon.

¹⁰ <http://www.bigdataparis.com/documents/Pierre-Delort-INSERM.pdf#page=5>.

differentiation strategy of a firm's product gives it to that extent an edge of monopoly.

A monopolistically competing firm faces a downward sloping demand curve in the same way as a real monopoly firm. Unlike a monopoly industry, a monopolistic industry is open for entry of new firms. In the short run, a firm will maximize profit in the point where marginal cost (MC) equals marginal revenue (MR). In the short run, average revenue may exceed average cost (AC). A monopolistic industry provides supernormal profits (differentiation profits) in the short run attracting new firms seeking a share of those profits. Supernormal profits attract in new entrants, which shifts the demand curve for existing firm to the left. New entrants continue to enter the market, until only normal profit is available. At this point, firms reach their long run equilibrium that is shown in Figure 6.

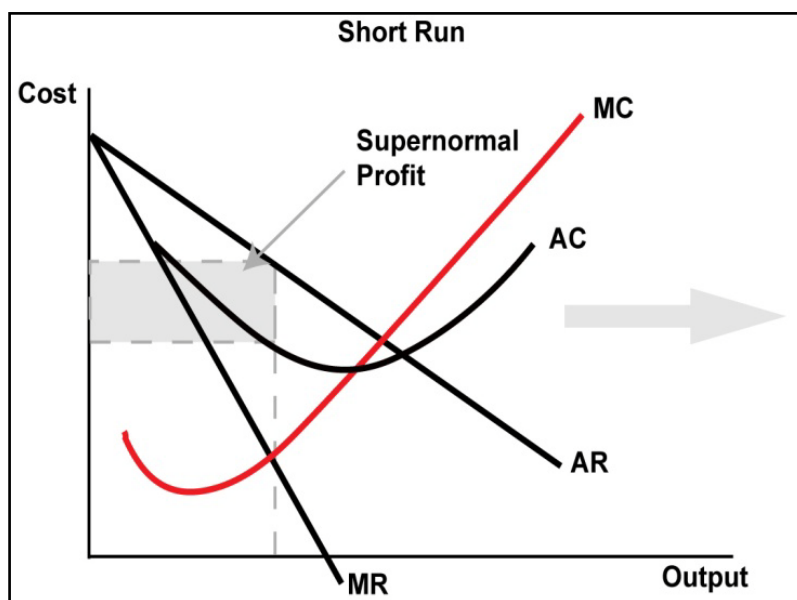


Figure 6. Monopolistic competition—From short run to long run.

In the long run, new entrant firms will be attracted into an industry by supernormal profits. This will shift the average revenue curve to the left until eventually average revenue (AR) is equal to average cost (AC) and the firm will earn so-called normal profit. Unlike a perfectly competitive firm that produces at the minimum point of its average total cost curve (AC) a monopolistically competitive firm produces at the point where average revenue (AR) equals marginal cost (MC). As neoclassical economists claim, a monopolistically competitive firm does not produce at an economically efficient point in the long run. However, a pure perfect competition is highly exceptional in practice, since the theory ignores the existence of capital that is necessary for manufacturing firms. Economists use perfect competition not so much as an attainable goal, but as a “pure theory” against which all other markets can be measured.

Strategic Marketing—Competitive Edge of Techno-Giants

Marketing has borrowed heavily from the microeconomic theory (Bartels, 1988). Edward Chamberlin was the father of marketing. Marketing is a set of processes for creating and communicating value to customers. The customer orientation is the competitive edge of the techno-giants in the U.S. The holistic marketing concept (Kotler & Keller, 2012) defines marketing as the complex activity containing relationship marketing, internal marketing, integrated marketing, and socially responsive marketing. The broad concept is mainly used

in practice to develop, design, and implement marketing programs and activities. Brand positioning is the core of strategic marketing. Techno-giants are excellent in their positioning. Economist (2018) refers to the OECD research: The average market share of the four largest firms has risen by three percentage points since 2000, and 50% of the increase comes from the U.S. At present, half of the 10 leading brands are platform giants, e.g. Apple, Google, and Facebook. They generate big data through their digital platforms.

Big data does not make a winner. It keeps “quarrying” in the right form and extracting application data from it. The Internet is one of the most important social innovations in the history. The platform giants seek to adopt to a number of distinct positions in the markets. Their business models are flexible. Google or Facebook provides popular services at no cost to consumers. Through their grip on advertising, they push up the costs of other firms. Aaker (1998) stresses the need for a system that provides assistance in an inherently complex decision-making. International marketing highlights the difference of country-specific resources and firm-specific resources (Ricardo). As Linder (1961) has claimed, domestic markets often determine the export products. Only some radical innovators, e.g. Google, can revolutionize global markets by launching “really” global products. The U.S. techno-giants are the winners of Chamberlin’s monopolistic competition. They combine the three strategic marketing variables in innovative ways. Strategic Marketing model is shown in Figure 7.

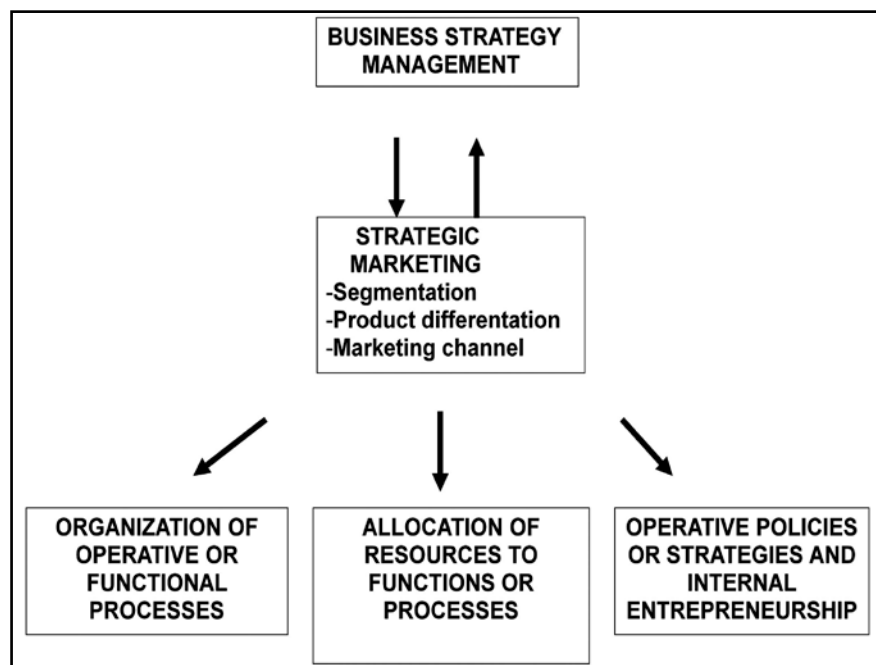


Figure 7. Strategic marketing model.

The PIMS (Profit Impact of Market Strategy)

Why the Silicon Valley techno-giants are world-champions in strategic marketing? The explanation is General Electric (GE). In the 1960s, Sidney Schoeffler working at GE was the manager of two institutes: the Marketing Science Institute, and the American Strategic Planning Institute. In 1975, Schoeffler started the PIMS (Profit Impact of Market Strategy) project. Senior managers at GE supported it. Schoeffler set up a research project in which each of GE’s strategic business units (SBUs) reported their performance on 12 variables (Schoeffler, Buzzell, & Heany, 1974). Later, the PIMS was expanded. In 1970-1983, 2,600 SBUs

were included in the PIMS database, from 200 companies. Today, the PIMS is managed by the PIMS Associates in London¹¹. The PIMS® (Profit Impact of Market Strategy®) tools are a key element of the Malik Strategy Intelligence Program. The PIMS allows assessing the potential effects of the strategy and actions of firms: In the market-place and on the bottom line. The PIMS Competitive Strategy Paradigm is shown in Figure 8 (Buzzell & Gale, 1987).

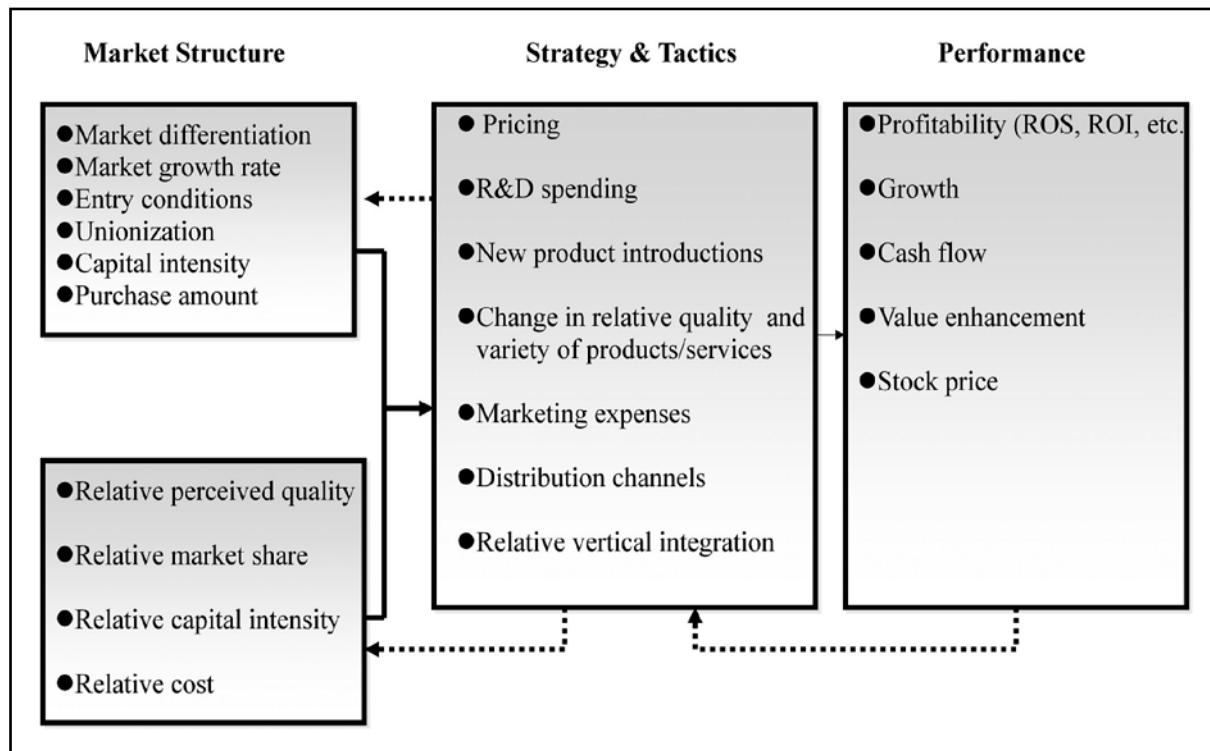


Figure 8. The PIMS competitive strategy paradigm. Source: Buzzell & Gale (1987, p. 28).

The PIMS Strategy database contains in-depth customer, market, and financial data of companies with a minimum time span of three years, giving 25,000 years real business experience¹². Since 1972 over 4,000 SBUs have contributed annual data, for periods that range from two to ten years, and covering a wide spectrum of industries in North America and countries in Europe. The PIMS can be used to evaluate market positioning and strategies. Some criticism can be mentioned. An empirical correlation does not necessarily imply the cause. There is no way of knowing whether the high market share causes the high profitability, or whether the high profitability causes the high market share. Intermediating factors, such as the product quality, can cause both the high profitability and the high market share. In spite of the weaknesses, the PIMS has been the success recipe of techno-firms in the construction of winning marketing plan. The PIMS studies explore dimensions of performance, structure, strategy and tactics. Market share and profitability are strongly related (Figure 9). SBUs with large market shares (over 50% of their served markets) enjoy ROI three times greater than small-share SBUs (under 10% of their served markets).

¹¹ <http://www.malik-management.com/en/about-us/company/malik-worldwide/london>.

¹² <http://www.malik-management.com/en/malik-solutions/malik-tools-and-methods/malik-pims>.

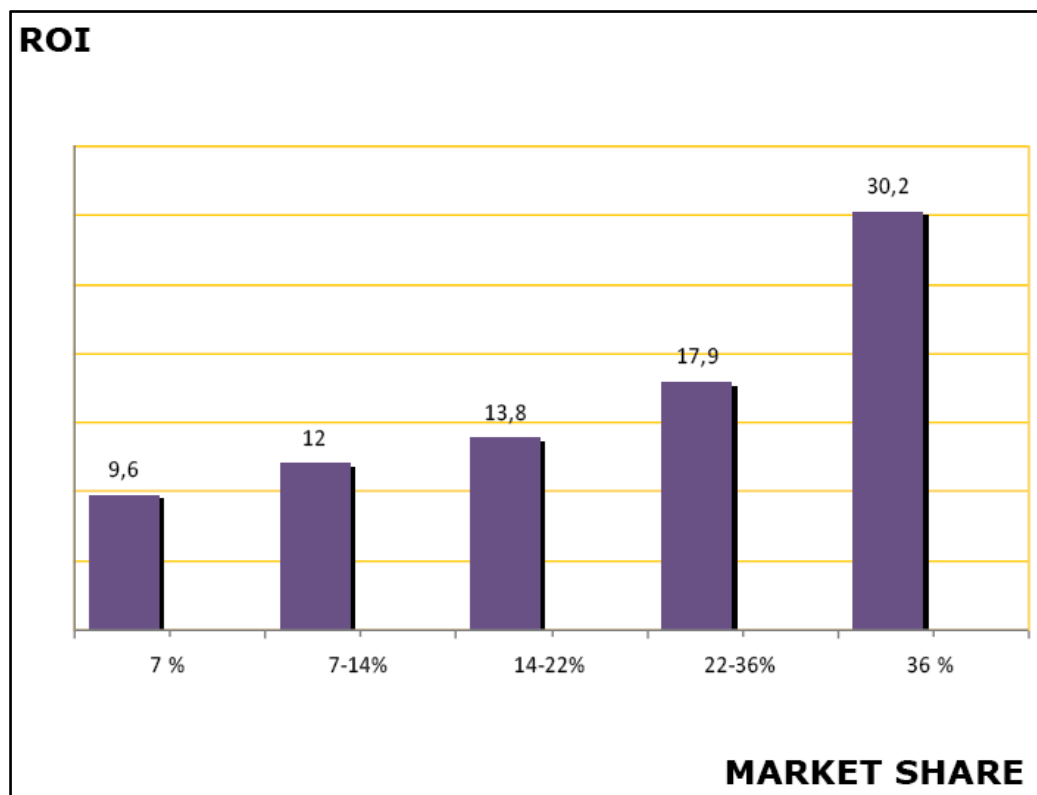


Figure 9. Main result of PIMS. Source: Buzzell & Gale (1987), Exhibit 1-2.

The share-profitability relationship, a strong market position combined with a high ROI ratio, is a reflection of management's skill or a good luck to construct the winning recipe. The benefits of gaining a high share explain the abnormal profits of the U.S. techno-giants. For the new entrants the costs of market leadership may exceed the payoffs. A market leadership position of a firm is often highly rewarding but difficult to achieve in the keenly competitive markets. In Drucker's (1985) analysis of entrepreneurial strategies, the striving for leadership is the entrepreneurial strategy par excellence. Drucker's warning is that this strategy is the greatest gamble, making no allowances for mistakes and permitting no second chance. If it is successful, it is highly rewarding to a techno-company. The most rewarding entrepreneurial strategy is creative imitation—it is 90% of the whole. Therefore, the main point is positive externalities. As Economist (2018) concludes, the techno-giants should be obliged to share information (Big data) and IPRs with new entrants on fare terms.

The primary reason for the market leadership position of a techno-giant is a rapid globalization. Nokia was an example of that during its strong growth period in global markets in the 1990s. In the end of 1970s when I worked as an economist at the Federation of Finnish Technology Industries, I analysed the PIMS method. During that time, Finland had about 10 export conglomerates. Nokia had 40 industries. The question was: What is the optimal number of industries in the globalizing markets? In order to get reliable information of the PIMS methods, I studied carefully the U.S. dissertations that were available in the Helsinki School of Economics. What was possible to conclude was that when markets globalize, the market leadership is rewarding. In order to achieve a leadership, the PIMS gives a better advice as the orthodox microeconomics. In the 2000s, Nokia was the leading phone brand. Nokia had a deep economic crisis in the early 2010s, when over one-half new cell phone subscriptions were smartphones.

What was the reason? The reason was the revolution in the business models. In the global markets, Apple started the redefined its product concept from mobile phones and nets to open platforms. Nokia was not able to do a revolution in its product concepts. Apple succeeded in that. Nokia was over-enthusiastic to cut prices of its phones. This is what the orthodox economists use to propose. In 2009, Apple was 85th best (brand value of 3,563\$m). Apple's brand value has shot up 27,593% in four years. Apple was on top in 2013 with its brand value 98,316\$m. The big loser was Nokia. Nokia was the fifth best in 2009 with its brand value 34,864\$m) and in 2013 the 57th best (brand value 7,444\$m). Nokia's brand value crossed 468% in four years¹³. The cost attached to the share building may be prohibitive, especially if the primary means used is price-cutting (Drucker, 1985).

The PIMS studies have identified the logic is applicable to innovative, medium-sized growth firms¹⁴. In the EU, the German "Mittelstand" has taken the full advantage of the PIMS. The German success recipe is Hidden Champions (HCs) coined by Simon (2009; 2014). The success stories of German HCs or German "Mittelstand" Champions (Venohr & Meyer, 2009; Venohr, 2010) are based on their unique applications of the monopolistic competition theory. The farther of the German doctrine was Erich Gutenberg (1897-1984) who was an influential German economist. He was the founder of modern German studies in both microeconomics and business management. In 1951-1966, he was the successor of Eugen Schmalenbach at the University of Cologne where his main subject was general business administration and industrial management. Gutenberg was in 1954-1966 a member of the Scientific Advisory Council (Wissenschaftlichen Beirats) under the Federal Ministry of Economics that is an appreciated position.

Gutenberg contributed strongly to the monopolistic competition theory (monopolistische konkurrenz). In reality, monopolistic markets are the most common in international trade. Examples of such markets are retailing of goods for everyday use, e.g. food, car, clothing, mobile phone, house and computer and the B2B-techno-industries. Because of the product differentiation, each firm such as HCs has its own monopolistic scope (monopolistische bereich). When a firm leaves the monopolistic scope, the rules of perfect competition are in force and the price is dictated by the market (Pindyck & Rubinfeld, 2009). In Gutenberg's solution, the price-sales function (Preis-Absatz-Funktion) is doubly kinked. In its monopolistic scope (monopolistische bereich) of the price-sales-function, a firm can plan its marketing parameters, without having to fear reactions of competitors (Figure 10).

Gutenberg's monopolistic competition (monopolistische konkurrenz) is the competition edge of German manufacturing champions that are skilful in their price positioning in international markets. Gutenberg's monopolistic scope (monopolistische bereich) concept is genius and visual. It is a reason why the German Mittelstand is so successful in international intra-industry trade. In Germany, there are near 400,000 internationalized companies (Venohr & Meyer, 2009). German writers of international trade are not well known worldwide. They are "hidden" in the same way as the highly successful companies called Hidden Champions. The leading U.S. business universities fully dominate the international debate on the competition models of a firm and the related topics of competitiveness of nations or regions. The Harvard Business School and the Chicago University have dominant position in that. However, Germany is the world champion in international

¹³ <http://www.interbrand.com/en/best-global-brands/2013/top-100-list-view.aspx>.

¹⁴ The PIMS studies show that the average return on investment in market segments of less than \$100 million dollars is 27%, while the return in large (billion dollar and over), less differentiated markets averages about to 11 percent. Buzzell & Gale (1987).

trade in relative terms (see Simon, 2009). In Figure 4, an application of Chamberlin's (1933) positioning model is shown referring to the ICT markets. German HCs have top positions (Figure 11).

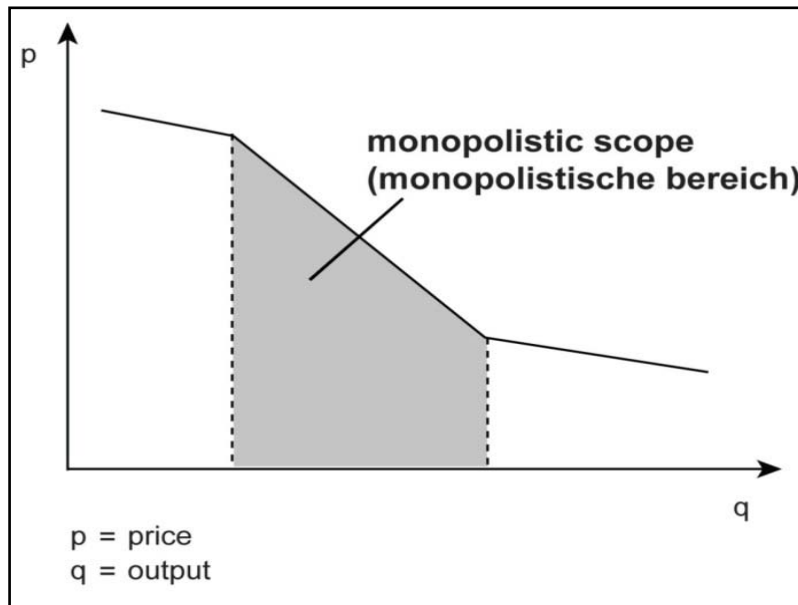


Figure 10. Gutenberg's price theory.

PRICE CATEGORIES	PRODUCT	COMPETITIVE ADVANTAGES
<p>TOP HIGH</p> <p>Differentiation advantage</p> <p>MID HIGH</p>	<p>HC companies try to serve their global customers with high-quality products/ services</p>	<p>HC companies compete with customer-specific differentiation</p> <p>Emergent market theory for SMEs</p>
<p>Stuck-in-the middle</p> <p>MID</p>	<p>Finnish and SMEs operate stagnating domestic markets with commodities</p>	<p>No competitive edge since multinationals do the same in big and global scale</p>
<p>MID LOW</p> <p>Cost advantage</p> <p>LOW LOW</p>	<p>Products from low-cost-nations such as China</p>	<p>Mass-customized products and modern production technologies</p>
<p>————— Market Volume</p> <p>- - - - - Profit potential of market</p>		

Figure 11. Price positioning of hidden champions.

Sloan (1963) in General Motors (GM) was one of the first managers that utilized Chamberlin's product differentiation model and positioned GM's five car brands in five price categories. Through this radical marketing innovation, Alfred Sloan could beat Henry Ford who with his T-model has won about 60% of the

U.S. car markets. Why Sloan could do it? The main reason is that through multiple brands and car models, GM provided more options to consumers, and expanded the total volume of U.S. car markets by 30%. GM could cover relevant price segments for decades. The first ones that challenged GM were Japanese car manufacturers that reshaped the price positioning of cars. What is important to remember is that, in global markets there are mobility barriers (McGee & Thomas, 1986; 1989) that make it costly to implement any radical change in the market price structure. Rumelt's (1984) isolating mechanism that protects a firm's core competences relates to knowledge, especially tacit knowledge (Nonaka & Takeuchi, 1995).

In the last few decades, the pendulum has swung back towards the German historical school of economics. Instead of relying on abstract neoclassical theories of international trade, Krugman (1991) included monopolistic competition to his model that has become the standard in analyses of economies of scale and product differentiation, called the New Trade Theory. Gutenberg's (1951; 1955; 1969) comprehensive view of the role of general management (Allgemeine Betriebswirtschaftslehre) is the core of business administration. Gutenberg's ideas are parallel to Alfred Chandler (1962; 1990) emphasizing the role of management in the transformation of firms' strategies as response to technology revolution and to the paradigm changes in globalizing economies (Kreikebaum, 2000). HCs have succeeded in avoiding the devastating price competition in the global markets by doing the best to serve their customers with their customer-related innovations. The best business recipes are simple.

My View to Monopolistic Competition

In the 1980s and the 1990s, I did field research trips in EU-countries. I analysed both consumer industries and B2B industries. I wrote tens of books and research reports on that. In 1970-1971, I worked in the Pori Cotton Factory (largest industrial complex ever built in Finland). I assisted two German consultants in the factory rationalization. The German industrial method was challenging to apply although useful since the idea was to reveal bottlenecks of the production process and make them detectable for operative production managers. In 1971-1974, I worked in Friitala Oy (known of its high quality leather goods). The inflation rate was high in the 1970s. Finland was the nation of "political" strikes that destroyed price sensitive industries. In 1975-1976, I worked in Kone Oyj, a successful engineering company. Kone's corporate culture was encouraging. Young men as me was allowed to innovate. Kone is a Finnish "Big Champion" (Simon, 2009).

Kone and HCs applied the continuous product and service innovation method in "old" techno-industries. They revitalized techno-industries by moving the logic away from price competition to innovativeness. HCs accept the high market risk particular to monopolistic competition. My models of strategic marketing are an outsider's view of the German method. I understood that when having read Hermann Simon's (2009) genius book of the HCs. MNCs differentiate their offerings by mass-customization, location and ownership advantages in all continents (Dunning, 1993). HCs have the customer-oriented business model that fits better than the "American method" with the huge diversity of customer needs in global markets. Since the 1990s, parallel with globalization, HCs have accumulated managerial knowledge of how to win a global leadership in narrow segments¹⁵. HCs have an integrated marketing channel. In average, HCs have tens subsidiaries worldwide, which is a powerful method to control customer "big" data. For HCs, the global positioning means three

¹⁵ Total count of Hidden Champions stands at 2,734 worldwide and 1,307 of them are from Germany and relatively large share from other German speaking countries: Austria: 116, and Switzerland 110. From Nordic countries Sweden has 49 HCs, Denmark 19, Finland 14 and Norway 13. <http://meta.org.au/wp-content/uploads/2013/11/SimonKucherandPartners.pdf>, p. 15.

important competitive edges: premium product quality, superior value-added services and customer-based innovations.

The Nordic countries has succeeded well in international trade. The Swedish Nobel Prize winner Bertel Ohlin (year 1977) understood the critical importance of the economies of scale that are external to the firm but internal to an industry. The challenge is to understand how techno-firms compete. Horizontal competition is not as important as university economists assume. Vertical R&D and production networks spread across continents. In the intra-industry trade doctrine by Ohlin (1993) and Krugman (1991), competition and co-operation takes place parallel. Intra-industry trade is an important practice, promoting innovation and increasing the number of differentiated versions of the same type of products. In the 1950s, Wassily Leontief, a Nobel Prize winner (1973) tested his model in the U.S. and found that a capital-abundant country exported labour-intensive and imported capital-intensive commodities (Leontief, 1986). This is the Leontief's paradox.

The U.S. and China are large domestic markets. Germany and the Nordic countries are open to international trade. As Economist (2018) found, competition is a dilemma in the West. The claim that China is destroying the West is exaggerated. The high market shares and concentrated ownership of techno-giants dominating the Internet is a challenge to market dynamics. Techno-giants benefit from innovation and artificial intelligence. They do not pay for “big data”. The link with the distortions of competition is thin, as techno-giants' stakeholders can switch a firm with the low switching costs. Traditional industries are afraid of techno-giants. Amazon is able to redesign all retailing industries. Amazon's power is the network effects. Artificial intelligence and data mining provide competitive weapons to bind platform global users. According to the Economist, the market value of Amazon is justified if Amazon will hold a 12% market share in the U.S. retail market (Walmart's market share is 7%).

Techno-giants are not “bad citizens”. In the EU, techno-giants are seen to be responsible for the market concentration, even though they invest their free cash flows in R&D. In the U.S. and the EU, the number of startups has decreased, which is a reason for the lack of competition. The U.S. has been the single market for at least 100 years. The EU is not that today. The EU's giants are smaller than the U.S. giants are. In the long term, the impact of techno-giants on its home and global markets is positive. Natural monopolies create high barriers to entrants, not techno-giants that may open up their proprietary knowledge stocks. A strategic group (McGee & Thomas, 1986) is a useful concept, because it can be used to accumulate the group specific learning capacity (Lahti, 2005). The Silicon Valley is a huge ecosystem with enormous learning capacity. Economist (2018) identifies some areas of competition policy:

(1) Data and IPRs should fuel innovation, not protect incumbents. Big platforms should license anonymized bulk data to rivals. Patents should be easier to challenge in court.

(2) Barriers to entry (non-compete clauses, licensing requirements and complex regulations written by lobbyists) should tear down. More than 20% of American workers must hold licenses to do their jobs, up from just 5% in 1950.

(3) Antitrust laws should fit to the 21st century. The US's regulators should have more powers, as the Britain's do, to investigate markets that are becoming dysfunctional. Big tech firms should find it much harder to neutralize potential rivals, as Facebook did when it acquired Instagram in 2012 and WhatsApp in 2014.

As Economist (2018) concludes, the antitrust policy needs to move power from platforms to people by creating a public internet platform of techno-companies like Facebook, Alphabet, Uber, and Twitter.

Experiences of regulation are bad. For competitive reasons, a radical policy instrument could be to prevent techno-giants to buy startups. However, this sort of intervention to competition is not realistic. A realistic policy instrument might be to motivate techno-giants to share information (Big data) and IPRs with new entrants on fair terms. This has happened earlier. In 1956, the U.S. federal forced IBM to open up its patents, which lead to an innovation boost. It could be fair to allow customers to own critical IT resources (agglomerated systems and Databases). Two Chinese techno-giants (Alibaba and Tencent) are accustomed to a price war on services, such as digital tax, video, digital commerce, games, travel, home distribution, cloud services and music. In China, techno-entrants take great risks to contest markets. Dynamics do not work in the U.S. or in the EU. In 2018, Chinese techno-giants are winners if the West start to reregulate it techno-giants. The main competition problem is natural monopolies.

The priority of the West and China is data; about 90% of digital data is created during past two years. Sensors, social media, purchase transactions, telephones, location functions, etc. create more data. Sensors, MEMSs (Micro Electro-Mechanical Systems), revolutionize many traditional industries (Figure 12). Their relatively low price, high efficiency, and low power consumption make industrial internet (IoT) profitable in many industries. In 2025, the IoT may account for 11% of the world GDP. The IoT standardization brings applications at the reasonable price. As Ericsson and Cisco have predicted, even 50 billion devices are connected to IoT sensors in 2020. The use of IoT is enhanced by the growth of 5G networks. Uber changed the traffic sector and the same is happening in other areas.

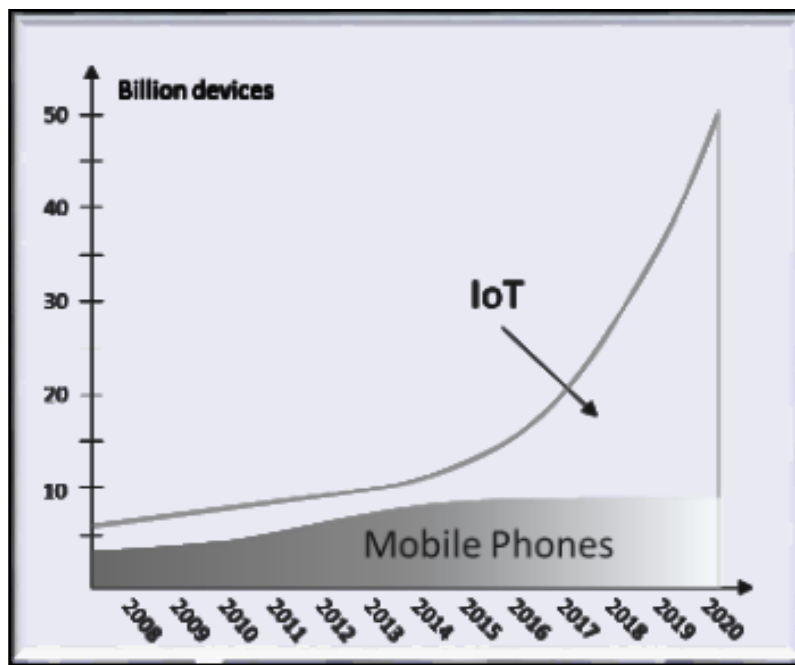


Figure 12. IoT-growth in 2008-2020.

Source: <https://www.zacco.com/insights/white-paper/how-address-internet-things-iot-patent-perspective>

Techno-brands, including Apple, are close to their consumers in open application environments, iTunes, AndroidPay, etc. The big Chinese companies, including Huawei and ZTE, increase their stakes in the IoT revolution. Apple, Google, Qualcomm, Intel, and IBM have established their own alliance provide the winning de facto standard. Application firms invest in the IoT business with standard solutions and customer-oriented

solutions. Germany is the IoT-laboratory in the EU. Even the Nordic countries could play an important role in the IoT standardization from the point of view of 5G networks where Nokia and Eriksson are pioneers globally. Finland is a strong user of IoT, which is created by the engineering sector and the ICT industry.

Some Theoretical Conclusions

Caves (1992) with students, e.g. Mikael Porter, renamed Edward Chamberlin's rival group as a strategic group. Another concept was mobility barriers. Howard Thomas (Warwick University) took Caves' role in the EU. I was a member of Thomas' IO Group that sought to create an EU's IO theory. I conducted field-studies in the hitech, metal, design and software industries in ten EU countries to create a Schumpeterian market-sector theory. The Harvard New IO models (Scherer & Ross, 1990) are useful in competition analyses. Europe is a mosaic when the U.S. and China are monoliths. In the EU, techno-giants are not dominating the landscape of B2B industries in the same way as in the U.S. Imperfect competition theories are important to Europe. The U.S. and China take advantage of the neoclassical theories relaying on the models of perfect competition. As Chamberlin (1957; 1965) claimed, product differentiation under the monopolistic competition offers a rich variety in goods and services.

Monopolistic competition encourages continuous product innovations; the transition to perfect competition takes place by the scaling of product substitution. The neoclassical view is that the transition to perfect competition takes place when the number of competitors is scaled. In perfect competition, there is a large number firms and the slice of the demand curve each firm sees is a flat line. A firm is a price taker, when it responds to changes in supply and demand by adjusting prices rather than attempting to influence the level of supply or demand. In monopolistic industries, a firm faces a downward sloping demand curve; it is no longer a price taker but a price setter. For Chamberlin, perfect competition, per se, is an abstraction, because the behaviour of firms is not like pure price competition. Chamberlin insisted on the claim that at an individual product level, there are two different kinds of competition:

- (1) Price competition ;
- (2) Non-price competition.

The Chicago School propagates for the free-market economy with the claim: Economic efficiency should be the exclusive goal. Economic efficiency has two parts namely productive efficiency and allocating efficiency. Practices that improve the firm's productive efficiency can lower allocating efficiency of markets. The high market concentration and the high product differentiation rates may contribute to the anti-competitive issues (Perloff, Karp, & Golan, 2007). According to the Chicago, most of markets are competitive in nature although they may have a few sellers. The SCP concentration measures signal that the big firms have a strong market power. The U.S. markets are domestic in their basic nature as the Chinese markets, since the international trade is only some 15% of the GDP in both nations. This is the major difference to the EU markets. In the EU, the internationalization rate of nations is about 30%. This is why the EU economies is open for international competition (de Jong & Shepherd, 2007).

Between 1997 and 2012, the weighted average market share of the four largest U.S. firms increased from 26% to 32%. In the U.S., 10% of the domestic economy consists of sectors where four companies dominate 2/3 of the market. Free cash flow for companies is 76% above the 50-year average of GDP. Prices are high, e.g. in airline, credit card, tele, health care services. The competition problem in the U.S. is the "natural" monopolies in the domestic markets. Techno-giants operate in global markets. They follow primarily monopolistic

competition models. In order to open up the highly concentrated industries in the West, a relevant analysis would be the weighing of mobility barriers for IoT artificial revolution¹⁶:

- (1) Interoperability—IoT systems communicate with each other;
- (2) Security—the new security threats that exist;
- (3) Integrity—to use information in a transparent and secure way;
- (4) IPRs—common understanding of ownership of big data;
- (5) Clouds—exploiting the efficiency of cloud service;
- (6) Big data—control of data warehouses.

The scientific question is: To what extent the globalized markets of IoT, Big data and science (including AI) are exogenous or endogenous nations/ regions and companies. As Shepherd (1990) has listed, some entry barriers (sub-element of mobility barriers) should be analysed:

(1) Most of factors mentioned in the SCP literature are exogenous (economic/intrinsic) e.g.: capital requirements, economies of scale, product differentiation, diversification, vertical integration, R&D intensity, and absolute cost advantages. These factors are difficult to change in the short run. In the long run, the revolution of ICT-technologies will change the whole production function.

(2) There is a list of endogenous (voluntary and strategic) factors: e.g. selling/advertising expenses, intellectual property rights, and control/contracts over strategic resources. These factors are strategic factors to firms and many kinds of reallocations are possible in the short run.

As Lucas (1988) argued, human capital externalities constitute the major growth factor. Catalysts of global communication externalities are urban systems (e.g. Silicon Valley or German metropolises) with advanced education and innovation systems (Chandler, Hagström, & Sölvell, 1998). As Chandler (1962; 1990) has claimed, the large-scale production technology of the 19th century required vertical integration and conscious managerial attention. For most of the 20th century, the vertically integrated managerial hierarchies persisted because it was the appropriate solution for the capital-intensive industries to maintain the minimum efficient scale of operations. Globalization and digital technology revolution challenge vertical integration. Transformation towards networking enhances flexibility without losing control. The paradox is that the apostolates of networking are “hated” techno-giants. They utilize the economies of scale and scope (Marshall, 1920). Otherwise, they cannot succeed in the global transition to the economic system that is based on networking and entrepreneurship. Temporary monopoly power (Schumpeter, 1942) is also needed.

Natural monopolies are the main competition problem in the U.S. and to some extent in other continents. They behave as real monopolies. The worst case is the U.S. financial giants. The Chicago School of Monetarism propagated the idea that even giants in the highly concentrated industries are efficient. The Chicago School succeeded in its campaign. In the U.S. financial market, the share of financial assets held by the 10 largest U.S. financial institutions increased from 10% to 50% in three decades. This kind of monopoly policy cannot be found in Germany where state-owned companies (e.g. DP or DB) contribute to Germany's national economy: They have succeeded well in the global markets. As Economist (2018) reports, the “Chapter 11” rule that has been created in the U.S. for business startups is applied to U.S. natural monopolies, e.g. airlines. The Wall Street's conglomerates received gigantic bailouts, which are the catastrophe of market capitalism. In 1946, Japanese industrial-bank conglomerates were eliminated. The same happened in Germany.

¹⁶ <https://www.zacco.com/internet-things>.

The U.S. is an innovation center. It uses \$450 billion a year for R&D, 20% more than China and more than Europe, Japan, and South Korea in total. The internet's biggest success stories are¹⁷: Amazon (about 50% of America's book market, over 50% in e-books); Alibaba (about 80% of e-commerce in China); Facebook (1.3 billion active members); and Google (68% of online searches in America, more than 90% in Europe). The main reason is the high penetration rate of internet, over three billion people and 50% of the world's population. The Internet is open for anyone. The leading Internet companies are not abusing their customers worldwide although they are doing excellent business with their de facto standards and platforms. The reason is that these companies follow the logic of monopolistic competition in the same way as German HCs. The keen competition in German markets provides to HCs' options to source subcontracting with a low price. Intra-industry trade is the major reason for Germany's success. A high level of co-dependence between HCs and their customers is not a barrier. The customers have a free choice. This is the business model that the "hated" techno-giants follow in the global markets. Techno-giants and HCs do small things better than main competitors. This is the differential advantage according to Alderson (1957; 1965).

Germany's leading economists, including professors Hermann Simon and Fredmund Malik are aware of fact-based lessons in the same way as Harvard-Stanford professors. In Finland, the level of business economics has collapsed since the 1930s-1960s after the era of the Stockholm School (Ohlin, Linder). Simon and Malik have influenced strongly the development of corporate structures in about 1,400 HCs in German-speaking countries, of which about 90% are global success stories. Simon-Malik doctrine works well in the engineering industry. Its central idea is to create a database (Big Data), in which company management works based on "multinational pricing" based on facts and not on the thoughts. Simon-Malik's doctrine has made Germany the winners. HCs are not a well-known model¹⁸. The German global economy economic explanatory is *Mittelstand*, which includes 99% of 3.7 million companies¹⁹. In Germany, 95% of companies are family owned. Finland's weakness is a small number of export firms. SME exports have not grown as in Denmark, where there are 10,000 "mini-multinational" companies, while there are a thousand in Finland. There are about 340,000 export companies in Germany and 100,000 of them have made investments (FDI) abroad (Venohr, 2010).

As Economist (2018) imply, obstacles to open markets are emerging, because of the political economics by the "super-powers". A realistic picture of competition requires an extensive fact-based analysis. The Internet promotes of innovations in urban ghettos. In Finland, there are 0.4 m companies, but the majority of them are micro-firms (less than 10 people)²⁰, which have not resources for internationalization. Only few companies reach a minimum size of internationalization (500-1,000 people). In the 1990s, the German business sector made the right choice. As the markets globalize, companies must grow. German export companies are growing

¹⁷ <http://www.economist.com/news/business/21606850-biggest-internet-companies>.

¹⁸ German Hidden Champions: The EU's best option in global B2B markets!"—The evaluation by professor Hermann Simon. <http://biz.aalto.fi/fi/current/news/2015-03-18-002/>.

A few days ago I found your new book "German Hidden Champions: The EU's best option in global B2B markets!" on my desk. I would like to thank you, especially for the personal dedication.

"I am very impressed by the book. In my perception, its unique feature is that it integrates all relevant contributions to a better understanding of companies and markets, from Chamberlin to Schumpeter, to Gutenberg etc. You really have a comprehensive understanding of the history of economics and business sciences. With this book, you deliver an excellent overview. I think it's the first time that the Hidden Champions concept has been integrated into this larger context of the flow of theory and practical research." Prof. Dr. Dr. hc. mult. Hermann, Simon Chairman Simon-Kucher & Partners Strategy & Marketing Consultants, 13 April 2015.

¹⁹ German *Mittelstand*: Engine of the German economy, sivut 3-5. www.bmw.de/.../factbook-german-mittelstand,propert...

²⁰ Arto Lahti & Olavi Punakivi, 20.12.2011, unpublished.

in Asia and the U.S. where German high quality machineries, equipments, system products, and components are highly appreciated.

The PIMS databases could be useful to simulate the SCP model in the global contexts. This could be highly useful to identify structural niches of new entrants with radical business model innovations. The EU should implement that. The weakness of the EU in average is the fact-based marketing. The Nordic countries are small champions of technology revolution. Germany is the big champion. In the Nordic countries, Sweden and Denmark have succeeded in the exports of consumer goods and services. The German Mittelstand is the growth engine and the champion of market risk in the EU. It offers 61% of the jobs in the corporate sector, i.e. about 14 million jobs more than 80% of Germany's 1.6 million jobs the place where the young people are employed. Germany is also open for competition and, thereby, a good benchmark for completion authorities worldwide. What we need is an ambitious bid data based analyses.

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