Small Firms and Globalization

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Abstract

The world economy at the end of the twentieth century is characterized by increasing cross-border business and also increasing economic significance of small firms. The co-development is no co-incident. We first argue that globalization is an Austrian process relying on entrepreneurial discovery: the creation of innovations and the appropriation of the associated profit opportunities. The intrinsic nature of multinational firms' activities is to internationalize innovations. However, some small firms possess innovations with international profit opportunities too. There are theoretical reasons for us to expect that small firms are particularly likely to create radical innovations. These small firms and large firms can create synergies to globalize their market reach and mutually enhance their respective firm value. We also argue that globalization changes the landscape of competition. Previously integrated firms become networks of related firms competing consciously or unconsciously together, as a team against other teams. Large firms become central coordinators of a network. In this light, even small firms without valuable innovations can potentially be important supporting firms for a network of firms' global competitiveness. Finally, we suggest that small firms with radical technological innovations often internationalize on their own. The successful ones become large multinationals which develop and adopt the coordination skills to lead in network competition. Hence, we postulate that the origin of large multinationals are small firms possessing radical technological innovations with international profit opportunities.

Introduction

The objective of this paper is to discuss the relationship between small firms and the global economy. The world economy at the end of the twentieth century is characterized by increasing cross-border awareness and inter-dependence amongst nations. Both international trade and investment have increased by manifold. Total world trade increased from $629 billion (in 1995 dollar) in 1960 by eight times to $5 trillion by 1995 (world output grew only by 3.6 times). (Source: U.S. Economic Report of the President, Feb 1997, p. 243). Total world foreign direct investment went up from $48 billions p.a. in 1981-85 to $204 billions in 1994 (Source: United Nations World Investment Report, 1994). Small firms at the end of the century show an increasing degree of importance. Their share of sales, value-added, and employment went up in the European Union era, and smaller firms in the 1990s increased their share in exports and in outward foreign direct investment in the OECD countries and in many Asian countries (Source: OECD, 1996).

The co-development is not a co-incidence. In the following, we first argue that globalization is an Austrian process relying on entrepreneurial discovery (Kirzner (1997)): the creation of innovations and the appropriation of the associated profit opportunities. The intrinsic nature of multinational firms' activities is to internationalize innovations. In this context, small firms play three important role in the globalization. (i) Some small firms possess innovations with international profit opportunities; there are theoretical reasons for us to expect that small firms are particularly likely to create radical innovations. (ii) Small firms are indispensible partners of large and other small firms in internationalization. Small firms with innovations and large firms can create synergies to

globalize their market reach and mutually enhance their respective firm value. Also, globalization changes the landscape of competition. Previously integrated firms become networks of related firms competing consciously or unconsciously together, as a team against other teams. Large firms become central coordinators of a network. In this light, even small firms without valuable innovations can potentially be important supporting firms for a network of firms' global competitiveness. (iii) Finally, we suggest that small firms with radical technological innovations are the origin of large multinationals which develop and adopt the coordination skills to lead in network competition. Hence, we postulate that the origin of large multinationals are small firms possessing radical technological innovations with international profit opportunities.

II. Globalization is an Austrian evolution process

Our purpose in this section is to argue that globalization can be viewed as an Austrian process relying on entrepreneurial discovery (Kirzner, 1997). Such conceptualization of the modern business world leads to the arguments we shall make in later sections.

The modern business world is characterized by globalization by which we mean international connectedness and interdependence of economies; hence an internationalized scope of intensified competitive pressure on firms. Walking into an English toys store, one is bound to find toys featured in Japanese cartoons or US movies, manufactured by Chinese or Thai manufacturers who buy supply from Canadian chemical companies, shipped by Taiwan shippers with insurance coverage underwritten by European firms, advertised by British companies, accounting and related data processed

by Irish workers, and property rights protected by US, Hong Kong, and even Chinese lawyers, with one U.S. distributor overseeing the whole chain of processes. Even identical activity in a company can be internationalized. For example, some firms have "around the clock" engineering design by coordinating electronically the work of their engineers in India, Europe, and the US.

Three developments are commonly agreed as the driving forces of globalization: the explosive growth in technology to connect people and locations, the creation of a freer environment for international trade and investment, and massive economic restructuring and liberalization. Explosive technological improvement in information processing creates awareness of international economic opportunities. It also creates the possibility to unbundle activities, e.g., a clothing designer and a manufacturer can be a continent apart but is only one email away from each other. The creation of freer trade and investment environment in the form of EC, NAFTA, APEA, WTO, etc., allows more scale economies in international trade and investment. Large scale economic reforms and liberalization in hitherto closed areas, e.g., China and Eastern Europe, provide many new economic opportunities and attract tremendous investment. Profit seeking firms and investors identify cross-border economic opportunities created by the three changes and act on them. This forms the activities in globalization[1].

[1] One way causality running from the forces to globalization is definitely mistaken. The relationship among globalization and the three developments is interwined. Globalization increases the damage of inward oriented policies: isolated economies are falling further behind from the opened economies as investment shifts to more open economies and as closedness is less able to favorably influence an economy's terms of trade. Economic liberalization and the open up of trade and investment are by themselve a conseqence of increased information flow. Increased awareness of some countries' success with a liberalized and open door economic policies leads to the formation of

Economists' discussion of globalization often focuses on how international trade and investment affects a country's factor returns. For example, there is now a vast literature on whether trade or technological development explains the diverging earnings of people with high and low human capital. Also emerging is a literature on whether technology diffusion associated with international investment hurts or helps developed countries' economic welfare. While these discussions of globalization are interesting and insightful, a different angle is more fruitful for our understanding of the role of small firms in a globalized world economy. Our proposal is to view globalization as a dynamic Austrian evolution process on a global scale.

Let us visualize the globalization process first based on static opportunities. Imagine that the world is cut up into disconnected nations. There have been formidable natural and artificial barriers in information flow, trade and investment between nations. The world changes – isolated localities are now physically connected and artificial barriers to information flow, trade and investment are broken down. The old equilibrium, which is composed of autarky equilibrium in each locality, is not sustainable. The new environment has profitable trade and real investment opportunities which were previously unavailable because of natural and artificial barriers. As firms and individuals actualize these opportunities, there will be international reallocation of production and factor inputs. Individual nations and the world altogether undergo structural adjustment.

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political pressures against isolationist policies. Increase in international trade and investment in turn increases the demand for better communication and transportation technologies. On the other hand, increase in communication and transportation technologies increases the possibility set for international trade and investment.

The shift from the old to the new equilibrium is not automatic. It relies on the discovery and the appropriation of profit opportunities, which Kirzner (1997) refers to as entrepreneurial discovery. Entrepreneurial firms seek opportunities as doing business across borders becomes a possibility. They find that some of their local goods and services may have hitherto unexplored profits in other locations and they proceed to capture these "international expansion" opportunities. In the process, international trade and investment go up, productivity increases, factor and goods prices change, consumption patterns adjust, and the world shifts from the old equilibrium to the new globally efficient equilibrium. Clearly, a rigorous process of entrepreneurial discovery on a global scale is the driver of the globalization of business.

The enterpreneurial discovery process, however, is not limited to the uncovering and appropriation of existing but hidden static opportunities. The process also includes the discovery of innovations and the appropriation of innovation profits in the Schumpeterian fashion. Innovations here include not just the discovery of new products, technologies and technological process. They also include the discovery of better ways to carry out firm activities, like more efficient production process, marketing, and the more efficient organization of activities ranging from design, sourcing, manufacturing, marketing, to the management of inventory, finance, human resources, information processing, and so on. Indeed, our illustration of modern business at the beginning of this section is a stylistic representation of the efficient and globalized organization of vertically related business activities.

Global information flow and market access speeds up the entrepreneurial discovery of dynamic opportunities. First, global market access gives innovations a wider

scope of application and therefore a much greater reward than they commenced in the old autarky equilibrium. As a consequence, more effort and resources are invested in creating new ideas and more new ideas are created and implemented. Second, practice makes perfect: firms learn over time to better spot and capture international economic opportunities. In the global competition era, firms failing to learn quickly are out competed in the goods and services market and are also losers in the competition for investment fund. Finally, because of rapid information flow and convenience in cross-border business, the world economy has more profit seekers, innovation profits disappear fast. Firms race to be more innovative and to bring innovations onto markets fast. Less innovative firms are more likely to be out-competed than in the past. Hence, product cycle time is shortened and discontinuous changes are more frequent. Overall, globalization leads to a faster pace of creative destruction.

In the above dynamic world of global entrepreneurial discovery, two features definitely stand out. The first one is the wide spread effort to innovate and to bring innovations to global market place. Second, the wider and deeper competitive pressure changes the organization of business activities. Competitive pressure makes firm scan globally for more efficient ways to organize themselves. As a result, the landscape of competition changes.

III – Internationalization of Innovations

In this section, we argue that the internationalization of innovations is the job for both large and small firms. The establishment of large multinationals are directly the consequence of internationalization of innovations. Yet, smaller firms play a

complementary role. They are more likely to advance radical innovations and are more likely to search for innovations in the less crowded corners of the technological possibility set. Moreover, large and small firms play a synergistic role in internationalizing innovations.

III.a Multinationals are conducting entrepreneurial discovery

The intrinsic nature of multinational firms' activities is to internationalize innovations. The multinational firm literature asks the question why firms are multinational. The simple-minded answer is that firms become multinational because they see and capture profitable international investment opportunities. However, it is commonly recognized that indigenous firms usually have a home court advantage over outsiders. Indigenous firms know more about the local environment and have established relationships with local supporting business, government, and customers. To overcome indigenous firms' home court advantage, outside entrants' profitable investment opportunities must be derived from their unique skills not access to indigenous firms. The next question is why the owners of these skills have to conduct international expansion by themselves rather than relying on armslength transactions. The answer is that the competitive advantage of multinationals are information based capabilities in technology, production, marketing, and management. The profit opportunities of information based skills are difficult to appropriate using armslength transactions. Contractual arrangement is impossible when the information based skills are embedded in the owner firm's organization. There is also the familiar contractual hazard associated with information asymmetry, opportunistic behavior and agency concerns. Multinational

firms therefore have to appropriate the international profit opportunities of their intangible skills by internalizing the markets for their skills (for references, see Caves, 1996). The consideration implies that the very nature of multinational firms' activities is to internationalize Schumpeterian evolution (Schumpeter, 1934).

Morck and Yeung (1991, 1992) test the idea using financial economic methods. In their 1991 article, they regress Tobin's q on dummies capturing a firm's multinational structure, on proxies capturing production and marketing intangibles, and on the cross terms between the multinational dummies and intangible proxies. They find that the multinational structure dummies indeed significantly augment firm value. But they become insignificant in the presence of the cross-terms. The cross-terms have positive and significant regression coefficients. The interpretation is that a multinational structure enhances firm value because a firm expands the application of its intangible assets internationally. In their 1992 article, they re-test the idea by regressing stock price reactions to news on foreign acquisition on proxies capturing production, marketing, and management intangibles. They find that foreign acquisition increases firm value only when an acquirer possesses intangibles. Otherwise, foreign acquisition reduces firm value.

Multinational firms, once established, have three additional advantages in supplying entrepreneurial discovery. First, their past success lead to handsome current financial resources which are vitally important in financing the development and commercialization of new innovations. Second, multinational firms' networks of affiliates give them an advantage in spotting innovations and associated international profit opportunities. Third, their secured multinational networks of affiliates allow them

to quickly implement viable innovations on a global scale at low risks and costs. Their larger size and greater resources strengthen their ability to overcome entry barriers.

III.b Small firms are radical innovators

There is no presumption, however, that large multinational firms are the only players in international entrepreneurial discovery. Some small firms possess radical innovations and are therefore key contributors to an international Schumpeterian process. Indeed, it has been suggested that smaller firms are more likely to make radical innovations than larger firms (Acs et al., 1997). Innovations arise only when property rights are properly aligned. Acs et al. argue that property rights may be less properly aligned in larger corporation than in smaller companies and among individual innovators. An innovator in a large company only has very limited property rights protection. The innovation result generally belong to the corporation, not the employee who invented it. This creates the tendency to free-ride on others' innovative efforts in a large company. Some may argue that the agency problem can be alleviated by incentive contracts. However, a proper incentive contract has to depend on ex post innovation results. This creates the tendency for established innovators to entrench and stifle the emergence of radical innovations which undermine the value of old innovations. All these concerns reduce creativity within a large company.

In contrast to innovative employees in large corporations, independent innovators can hold clear property rights, can have every incentive to undertake radical innovation, and can be largely free of red-tape. Thus, smaller firms are better at creating radical

innovations. As such, they are often valuable contributors in the entrepreneurial discovery process.

Almeida and Kogut (1997) argue further that small firms' approach to innovation may be different from large firms'. Their first theoretical argument hinges on the difference in organization incentives between large and small firms which leads to a conclusion as in Acs et al. (1997) They further argue that small firms have fewer resources than large firms and thus rely more on localized knowledge networks for important inputs to the innovation process. They use patent citation data to examine innovation in the semiconductor industry regarding firms' exploration of technological diversity and their integration within local knowledge networks. Comparing the innovative activity of start-up firms and larger firms, they find that small firms do explore new technological areas by innovating in less 'crowded' areas and are tied into regional knowledge networks to a greater extent than large firms.

Acs et al. (1997) and Almeida and Kogut (1997) together suggest that small and large firms complement each other in generating technological innovations. The Almeida and Kogut results imply that small and large firms will together give a more comprehensive search for innovations in the technological opportunity set. The Acs et al. article suggests that small and large firm play complementary roles: small firms form radical innovations while large firms pursue the deepening of existing innovations.

III. c Small and large firms are snergistic partners in global competition

International entrepreneurial discovery involves not just the discovery of innovations, it also involves the appropriation of innovation profits in a global manner.

Supposedly, smaller firms with more limited resources are at a disadvantage in internationalizing their innovations. Acs, Morck, Shaver, and Yeung (1997) suggests that smaller and larger firms have a synergistics relationship in the internationalization of small firms' innovations. A small firm innovation and a multinational's assets and capability may be complementarity (e.g. the match between an auto-component firm's innovation and an auto-assembler's business). The small firm's innovation can then be internationalized via the multinational's existing international market access. The small and large firm's relationship can be armslength, joint ventures, or even that the large firms fully acquire the small firm. From the small firm's perspective, it benefits from having an access to the multinational firm's global market reach. From the large firm's perspective, the arrangement enhances the value of its existing assets and capabilities.

The consequence is not only that smaller firms' contribution is internationalized, but also that their reward is increased because of the larger scope of applications of their capabilities. That should encourage more innovation effort. However, the world is now a volatile one. Small firms everywhere face hidden competition. Global competition forces larger firms to be on the search of more efficient partners everywhere in the world. Non-performing small firms, and sub-units alike, can lose their business to another small firm in a country it may not even know exists. Globalization increases both the returns and risks for small firms.

Acs et al. (1997) recognize that smaller firms can conduct international expansion on its own. They compare the two modes of international expansion: direct versus intermediated by a multinational firm. They argue that when a small firm conducts direct expansion it has to pay for the internationalization costs to overcome local rivals' home

court advantage, which include market entry costs and property rights protection costs. In the intermediated mode, the small firm saves the internationalization costs but has to absorb some deadweight transactions costs and rent extraction by the intermediator. When competition amongst qualified intermediators bids away rent-extraction, the private choice between the two modes of international expansion is socially efficient in the sense that the small firm's contribution is maximized. (We shall discuss later which type of small firms are more likely to internationalize directly.)

There are certainly ample examples for small firms using large firms' global access to internationalize their market reach. Games-Casseres (1997) reports cases that small electronic firms form alliances with large firms to increase their capability to exploit their niches on grander scales. Many garment factories in developing countries benefit from such intermediated internationalization.

In summary, our point is that large and small firms play complementary and synergistic roles in international Schumpeterian evolution. The intrinsic nature of multinational firms' activities is to internationalize innovations. There are theoretical reasons for us to expect that small and large firms innovations make non-identical innovation efforts. When small firms' innovations and large firms assets and capabilities are complementary, small firms and large firms can create synergies to globalize their market reach and mutually enhance their respective firm value.

IV The changing competition landscape

Globalization changes the competition landscape. Entrepreneurial discovery in a global scale involves searching for more efficient organization and coordination of

business activities. We would like to raise in the section that, as a consequence, the landscape of competition is not characterized by individual firms competing against one another. Instead, competition is now amongst networks of firms. In this view, some small firms may have a naturally important presence because they are indispensable components in the network competition.

Undeniably, multinationals are key players in globalization: they are the conduit of changes and they are the chief beneficiaries of globalization. Their presumed dominance, however, can easily be pushed too far to suggest that small firms have withering survivorship. For example, one may argue that small firms with no global market access will find that their factor inputs generate less return than when employed by multinational firms. How would anyone then be interested to invest and to work for small firms? Certainly that is incorrect. In spite of the presumed dominance of multinational firms in a globalized world, there is growing evidence that small firms' vitality grows in the globalization era.

Stigler (1951) points out that firms carry out multiple activities, some have specialization benefits (increasing returns to scale). When the market for parent firms' final products is small, these specific activities do have not enough demand to support independent specialized suppliers. However, as the markets for the parent firms' final products have grown large enough, independent specialty suppliers can emerge and form an industry supporting firms producing final products. The development of the sub-industry is efficient because it allows the utilization of increasing returns to scale in these specialty activities. The efficiency of the development of the supporting industry can derive from more than just the technology efficiency as pointed out by Stigler.

Independent specialty firms may have more incentives to learn by doing because they escape the bureaucratic problem and distorted agency incentives in larger organizations.

Globalization contributes to the development of niche sub-industries. Global marketing of large firms final goods and products is synonymous to market growth, an ingredient for the development of sub-industries. One would therefore expect that globalization leads to the development of viable new sub-industries (e.g. some auto-component sub-industries, drafting and other special design industries). Globalized competitive pressure forces firms to be efficient. Nowadays, large firms strive to focus on "core competence" and out-sources the non-essentials.

The infant stage of the development of these sub-industries is often comprised of the emergence of small firms with specialized focus and skills (some of which do not yet have internationalization potentials). Yet, Stigler's argument clearly implies that the presence of a strong sub-industry increases the competitiveness of the larger (and previously parent) firms. Therefore, specialized domestic small firms can play a subtly important role for an economy's global commercial success.

Globalization leads to more than just the development of sub-industries spun out from large firms. Dunning (1995) suggests in the context of globalization that firm boundaries are generally changing. Dunning argues that the traditional firm boundaries are defined by ownership conferred decision rights. The efficiency seeking aspect of entrepreneurial discovery changes the nature of firm activities substantially. Firms are driven by profit incentives and competition force to seek as many as possible assets and capabilities complementary to their existing assets and capabilities. Firm focus is no longer purely on production; it becomes the coordination of vertically related activities

ranging from R&D to design to sourcing to production and to marketing. (Indeed, that is the vital role the US firm plays in our example in the beginning of Section II.) Market fosters "specialization" as in Stigler (1951) and efficient and effective coordination of capabilities to serve consumers on a global scale.

In the new competitive landscape, firm boundaries are blurred by competitive "network" connection. Firms can now be thought of as coordinated transaction units rather than merely integrated production units. The traditional perception of a firm is that it is an integrated hierarchy transforming inputs to outputs. However, why would hierarchical integration always be optimal? It is not the only means to organize the transformation of inputs to output. Global competition demands efficiency in arranging these activities. For example, GM has long been wrestling with the questions on when to out-source, and which units of GM should become independent, while Toyota allegedly have mastered the management issue. The transactional relationship between transaction units is a prominent issue in the era of globalization.

Williamson (1991) points out that the governance structure of transactions can be broadly categorized into three modes: market, hierarchy and the hybrids. The comparison of the advantage of the various modes of governance depends on the needs the governance structure serves. The market transaction mode promotes incentive to perform and the ability to adjust to exogenous market changes (e.g. price changes) which call for autonomy. The hierarchical mode, if properly managed, promotes administrative controls and the ability to adapt to changes which call for coordinated responses (e.g. mutual adjustment in investment and in interaction frequencies). Williamson also points out that judiciary efficiency and effectiveness increases most extensively the effectiveness of the

market mode of transactions. Hybrid relationship always scores in the middle in the aforementioned comparisons.

Williamson's analytical result suggests that the chosen mode of transactional governance depends on the institutional environment, including commercial risks, political risks, contract laws, and property rights protection. It also depends on the nature of the transactions. For example, armslength relationship is less preferred when asset specificity is present; it is also less preferred when independent performance incentives and adjustment to exogenous shock are less important. Increasing global competition should force firms to intelligently adopt the optimal transaction governance. Thus, GM has to reduce its extent of integration. The garment industry is now characterized by vertically cooperating but legally separated firm-units each specializing in design, distribution and promotion, and actual manufacturing.

One probably wants to add to Williamson's consideration some simple economic changes. For example, changes in tax laws and mandatroy employment benefits raise the cost of employment in many rich countries. Larger firms are often required to pay handsome fringe employment benefits. Turning a sub-unit into a smaller independent firm probably saves employment cost.

Recall that one aspect of entrepreneurial discovery is to seek more efficient and effective ways to organize and coordinate the input-output transformation. Williamson's perspective clearly leads to the conclusion that vertical integration is not necessarily the chosen mode of governance. It will often be the case that <u>independent</u> small firms are a part of a team competing globally, their affiliation may be in the form of hybrid dependence or simply armslength. Large multinational firms will own (integrate) a unit

when asset specificity, administrative controls and tight internal coordination are important[2]. Overall, small firms are are partners in a joint effort to conduct entrepreneurial discovery. That is, they are part of a team of firms coordinated by a large firm for the purpose of maintaining the joint global competitiveness of the team of firms.

V A firm life cycle idea: small firms are the origin of new multinationals

Our arguments so far have been that multinational firms conduct international entrepreneurial discovery and that small firms are vital partners in the process. We now address the question on the origin of multinationals. Here, we postulate a firm life cycle idea: small firms with radical technological innovations internationalize on their own and they grow into large multinationals adopting the additional role of being coordinators of international enterpreneurial discovery.

There are several explanations for these smaller firms' tendency to conduct wholly owned internationalization. First, hierarchical control of their property rights is important for them to claim the first mover advantage of their innovations[3]. In terms of the argument in Acs et al. (1997), smaller firms equipped with production related intangibles find that expanding the international application of these skills via intermediation by larger firms leads to high transactions and rent extraction costs and thus is inferior to direct international expansion. Second, synergistic partnership between

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[2] The integration tendency will be mitigated with the development of sub-industries. The presence of a market for sub-activities disciplines opportunistic behavior and thus alleviates contractual hazard.

[3] One should not conclude that smaller firm possessing other types of innovations do not internationalize. As we have pointed out already, they may internationalize via larger firms' intermediation, including being acquired by larger firms.

large firms and small firms equipped with radical innovation is often absent. Radical innovations, by nature, often threaten to reduce the value of larger firms' existing products and capabilities. Also, radical innovations represent fundamental departure from established business practice and routines. Economic synergies based on scale and scope economies are bound to be absent.

Morck and Yeung (1992) find that large and small firms depend on different types of intangibles: smaller multinational firms' foreign acquisition gains derive from the possession of production related intangibles (proxied by R&D spending) while larger firms' foreign acquisition gains depend on marketing related intangibles (refer: regressions 4.3 and 4.4 of Table 4, Morck and Yeung, 1992). The result implies that the possession of unique innovations of the production type is crucial for small firms' direct international expansion. As the firm gains international management experiences and has established a larger network of international affiliates, softer skills like marketing and coordination assume their dominance. These firms become the "team" coordination leaders in Dunning's world.

Kohn (1997) reports results collaborating the point that smaller firms' direct internationalization effort relies on production related skills. Kohn finds that smaller firms do internationalize on their own. These are small firms possessing R&D related capabilities and often reside in less mature industries than other smaller firms. (On the other hand, larger firms which conduct foreign direct investment often reside in more mature industries than other larger firms.)

Collaborative evidence for the firm life cycle idea is found in Harris et al. (1993) which reports a study on income shifting behavior. They find that smaller firms do not

seem to conduct much income shifting to reduce taxes while larger multinational firms do. Hence, a firm relies on 'hard" intangible capabilities in the young stage and makes uses of 'soft" intangibles like income shifting (a kind of coordination) only in a more mature stage.

VI Conclusion

In this paper, we discuss the contribution of small firms and its relationship with large firms in the global economy. We see globalization as an Austrian evolution process based on entrepreneurial discovery. The process involves creating innovations, discovering profitable application of the innovations across borders, and actually capturing the profit opportunities. The process is invigorated by technological progress in communication, by liberalization of economies and the opening up of trade and investment.

Some small firms often have innovations of their own. Because of better property rights protections within smaller firms, small firms are more likely to be radical innovators than large firms. Their approach in searching for innovations is also different from large firms' approach. Due to their more limited resources, smaller firms tend to search for innovations in less crowded corners of a technology possibility set. These differences between large and small firm suggest that they together have a more complete search for innovations.

Small and large firms have a synergistic relationship in globalization. Smaller firms' earnings from innovations increases when larger firms intermediate the internationalization of their innovations. In turn, large firms' competitiveness and

earnings are increased by intermediating small firms' worthy innovations. Thence, small and large firms provide each other mutual stimulation in terms of innovation creation and tendency to expand internationally. Our argument points to that small and large firms are playing complementarily roles in modern day's rigorous globalized Schumpetarian evolution.

Even smaller firms without worthy innovations are also partners with large firms in the global economy. Because globalization increases the scale of business, large firms find that increased demand for some of their activities with specialization benefits can lead to the development of sub-industries. The development is usually initiated by the emergence of small firms. The emergence of strong sub-industries is a support of the larger firms' international competitiveness. Globalization essentially changes the organization of business activities. Due to efficiencey concerns, large firms do not strive for vertical integration. Instead, larger firms assume the additional role of being efficient and skilful coordinator of specialised capabilities of independent firms. They are the central network coordinator in the competition amongst networks of firms. From the perspective, small and large firms are again partners in global competition.

Finally, small firms with radical technological innovation are often the origin of large multinational firms. Small firms with production innovations often have to internationalize on their own because they need to protect their property rights in order to appropriate the first mover advantage. The successful ones become large multinationals which have learnt global coordination skills. Their softer skills then equip them to search and appropriate other unexplored profit (and efficiency improving) opportunities, which include internationalizing some smaller firms' worthy innovations and skills.

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