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Semiglobalization and international business strategy

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Abstract
If markets were either completely isolated by or integrated across borders, there would be little room for international business strategy to have content distinctive from 'mainstream' strategy. But a review of the economic evidence about the international integration of markets indicates that we fall in between these extremes, into a state of incomplete cross-border integration that I refer to as semiglobalization. More specifically, most measures of market integration have scaled new heights in the last few decades, but still fall far short of economic theory's ideal of perfect integration. The diagnosis of semiglobalization does more than just supply a relatively stable frame of reference for thinking about the environment of cross-border operations. It also calls attention to the critical role of location-specificity in the prospects of distinctive content for international business strategy relative to mainstream business and corporate strategy. In addition, it flags factors/products subject to location-specificity as being salient from the perspective of international business. Finally, it highlights the scope for strategies that strive to capitalize on the (large) residual barriers to cross-border integration, as well as those that simply try to cope with them.
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Introduction

The first of the three postulates on which Buckley and Casson (1976, 32) based their theory of the multinational enterprise was that 'firms maximize profit in a world of imperfect markets.' This structural insight has proved as fruitful in international business strategy as it has in 'mainstream' (single-country) business strategy, where it has been in circulation for even longer. What is somewhat odd, however, is that work in this vein in international business strategy has tended to focus on the same sources of market imperfections as mainstream business strategy: small numbers and, often related, the *business/usage-specificity* of key activities, resources, competencies, capabilities, knowledge, etc., or their *firm-specificity* in the sense of being collectively held by the firm's managerial hierarchy or employee pool and inalienable from it. However, the obvious potential source of market imperfections added by the international dimension – the possibly limited cross-border integration of markets or, more generally, the possible *location-specificity* of key activities, resources, etc. – has received less attention. Location-specificity of the specific sort wrought by

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market segmentation at national boundaries is at the core of this paper.[1]

This paper consists of two halves. The first half contains a broad – and therefore inevitably compressed – review of the empirical evidence on the cross-border integration of markets of different types: for products (via both trade and FDI), capital, labor, and knowledge. The review points to the conclusions that, on the one hand, the observed levels of cross-border integration of these types of markets are significant and in many cases have recently reached highs without historical precedent, but that, on the other hand, the observed levels of cross-border integration are also very far from complete and, extrapolating from historical rates of increase (not to mention recent setbacks), are likely to remain that way for a long time. This condition of incomplete cross-border integration, referred to here as *semiglobalization*, is more complex than the extremes of total insulation and total integration because it involves situations in which the barriers to market integration at borders are high, but not high enough to insulate countries completely from each other. Another way of putting this is that semiglobalization covers the range – apparently broad as well as complex – of situations in which neither the barriers nor the links among markets in different countries can be neglected.

The second half of this paper can be read as a short essay on the implications of the empirical finding of semi-globalization for international business strategy. It begins by noting that semi-globlization is a sufficient condition for location-specificity to matter. Although complete market insulation also suffices, it is a less challenging condition since, under it, international business strategy could simply be chunked up into applications of mainstream (that is, single-location) strategy, performed location by location – although some problems of coordination would still remain. Thus semi-globlalization is the underlying structural condition most conducive to thinking in careful ways about competing across multiple locations and how that might differ from competing at a single location. The essay elaborates on this and other, more specific, implications of the general diagnosis of semi-globalization. It discusses the balance to be struck in international business strategy between attention to location-specificity and other types of-specificity, and examines the conditions under which imperfections in particular types of market (especially knowledge, which was emphasized by Buckley and Casson, 1976) should be granted elevated status. Finally, the essay highlights the scope for strategies that strive to capitalize on the (large) residual barriers to cross-border integration, as well as those that simply try to cope with such barriers. The treatment is meant as much to stimulate and direct further research as to summarize research efforts to date.

It is worth adding that the first half of this paper – the next two sections – focuses on reviewing the economic evidence about the cross-border integration of markets of different types. The economic perspective is adopted because economics offers both a relatively well-developed conceptual framework for the analysis of market integration and some empirical basis for making judgments about levels of and changes in cross-border integration of the kinds that occupy its attention. Thus the next section of this paper looks at the cross-border integration of product markets, and the section that follows at markets for various types of resource or factor – capital, labor, and knowledge. The questions asked about each type of market concern changes in its level of international integration, measured in terms of quantity and price outcomes, over recent decades or the course of the 20th century, as well as its absolute level of international integration at the millennium. For a more specific delineation of what is included in and excluded from the review, see Table 1. While there is arguably a logic to the pattern of inclusions and exclusions, the more fundamental point is simply that one cannot talk about everything in Table 1 in a paper of this scope.

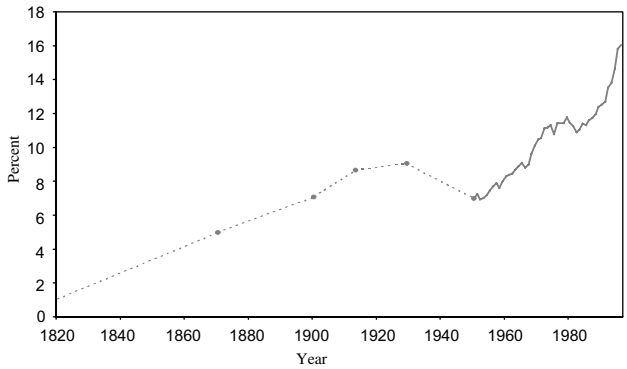
Product market integration

This section begins by looking at the most obvious quantity measure of the cross-border integration of

Table 1 Dimensions of integration

Dimension	Possible emphases	
Criteria for evaluating integration	Economic	Non-economic
Key boundaries	Countries	Others Continents/regions Localities
Locus of integration	Markets	Others Firms Networks
Type of markets	Products	Factors
Input/output emphasis	Outcomes	Drivers
Outcome variables	Quantities	Prices

Dark shading = primary emphasis. Gray shading = secondary emphasis.



Source: 1820-1992: Angus Maddison, *Monitoring the World Economy 1820-1992*, OECD 1995 1993-1998: World Trade Organization and International Monetary Fund data.

Figure 1 Exports divided by GDP. *Source*: 1820–1992, Maddison (1995); 1993–1998, World Trade Organization and International Monetary Fund data.

product markets: trade flows. It then looks at foreign direct investment (FDI) stocks and, finally and very briefly, at cross-border price integration.

Trade flows

To begin with a very long-run perspective, consider data on world exports divided by world GDP (the usual normalization) over the last two centuries based on and updated from data in Maddison (1995). As Figure 1 indicates, this ratio increased from about 1% at the beginning of the 19th century to nearly 10% towards the beginning of the 20th century, and, despite a period of stagnation and decline bounded by the two World Wars, has since managed to edge up towards 20%. Trade intensity has clearly reached new heights in the last quarter of the 20th century.

The increase in trade intensity over the course of the 20th century looks all the more remarkable when one accounts for the increasing share of GDP contributed, especially in developed countries, by two sectors that account for relatively little trade – services and government. One way of stripping out the effects of these 'non-traded' sectors is to remove them from the calculations and focus on the ratio of merchandise trade to merchandise value added. This leads to striking increases in measured trade exposure, as illustrated by Feenstra's (1998) sample of 11 relatively developed countries between 1913 and 1990. Over this period, the ratio of merchandise trade to merchandise value added increased for nine of these countries; the median change was +22 percentage points, compared with an initial median value of 36%, and total unweighted increases were close to 20 times as large as total unweighted decreases. The corresponding statistics for the ratio of merchandise trade to *total* GDP are increases for only six of the 11 countries, a median change of +2 percentage points from an initial median value of 20%, and total unweighted increases less than one-half as large as total unweighted decreases.

One interpretation of the historical patterns is that:

(1) trade had taken off in many commodities by the beginning of the 20th century;
(2) there were substantial increases in the trade of manufactures over the course of the 20th century, particularly its second half; and
(3) the service sector continues to be a very large bottleneck for trade-related flows even though it is growing.

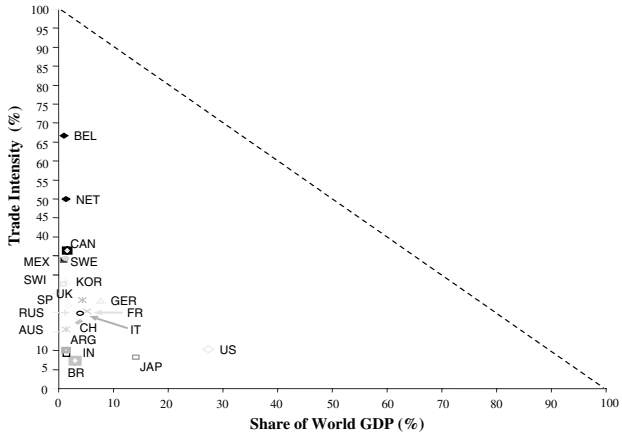
Irwin's (1996) comparison of the composition of US merchandise trade over a century is suggestive in this regard: see Table 2. While this neat ordering of the globalization of commodities, manufactures and services is obviously an oversimplification, it is nevertheless useful.

So trade has clearly increased over the last 50, 100 and 200 years. But it is useful to supplement this observation with some data about the absolute level of integration of product markets through trade. Economists who study international trade generally do not regard trade intensity as very high in absolute terms. In fact, they tend to find the issue of why there is not much more trade more interesting than the new records being set. To see the room for increase, consider a hypothetical benchmark, suggested by Frankel (2001), in which national borders did not affect buying patterns at all. In such a situation, buyers in a particular nation

Table 2 Commodity composition of US merchandise trade

Year	*Percentage distribution*	
	Exports	*Imports*
Agricultural goods		
1890	42.2	33.1
1990	11.5	5.6
Raw materials		
1890	36.6	22.8
1990	11.6	14.8
Manufactures		
1890	21.2	44.1
1990	77.0	79.6

Figures may not total to 100 due to rounding. Agricultural goods includes processed foods. *Source*: Irwin (1996).



Sources: GNP Rankings based World Development Bank's World Development Indicators, 2000.Import/Export Data from WTO.

Figure 2 Actual *vs* perfect product market integration through trade.

would be as prone to obtain goods and services from foreign producers as from domestic ones, and the share of imports in total domestic consumption would equal 1 minus the nation's share of world product. For example, as the US economy accounts for about one-quarter of gross world product, the US import/GDP ratio would, at this benchmark, equal 1 minus the US share of world production, or 0.75, as would, under the first-order assumption of balanced trade, the US export/GDP ratio. However, the actual ratios are only about one-sixth as large as these hypothetical levels![2]

The line with slope −1 in Figure 2 traces out this hypothetical benchmark of perfect product market integration as national shares of world product vary. It also plots the position of the 20 largest nations in these terms. Notice that most of the nations cluster close to the origin, and all fall well below the hypothetical maximum – including the two high-fliers, Belgium and the Netherlands.

While the hypothetical benchmark suggests significant barriers to cross-border product flows, it also embodies a number of extreme assumptions. A real example that points in the same direction is provided by Canadian provinces' patterns of trade with each other compared with their trade with the USA. In addition to the fact that data for these patterns are available, they have the added advantage of involving (international) trading partners that are close to each other along a number of dimensions. As of 1988, trade linkages between Canadian provinces were 20 times as large as their linkages with the 30 US states that traded the most intensively with Canada. This was true despite the fact that Canada and the USA share a common land border and language (mostly) and have friendly relations with each other, making theirs the largest bilateral trading relationship in the world (McCallum, 1995). The free trade agreement signed in 1988 between the two countries did reduce this domestic multiple by the mid-1990s, but only to 12 (and with the multiple remaining stuck at 30–40 in the case of services) (Helliwell, 1998, Chapter 2). Cruder data suggest a multiple of about six for trade within as opposed to between the member states of the European Union (Helliwell, 1998, Chapter 3). Given the regionalization of world trade that has been under way, the multiples of domestic-to-international economic exchange would obviously be higher if one were comparing trade within countries with trade outside the regional blocs to which they belong.

To sum up, trade intensity has clearly reached unprecedented levels, but still reveals significant impediments to the cross-border integration of product markets.

Foreign direct investment

Trade is not the only way in which the cross-border integration of product markets might be accomplished: FDI, which involves product-specific investment across borders, is an obvious alternative. To start with a long-run perspective, consider data on FDI stocks divided by GDP over the last century based on calculations in *World Investment Reports* issued by the UN Center on Transnational Corporations. As Table 3 indicates, FDI survived the interwar years better than trade (it even came to substitute for the latter as tariff barriers rose), but did not take off again quite as rapidly in the immediate postwar years. FDI has surged, however, since 1980 and, by 1997, had come to exceed the previous (prewar) peak in its share of gross world GDP by a significant margin: 12% to 9%. Despite the declines in the ratio of outward FDI stock to GDP exhibited by the UK and France, the largest foreign investors prior to World War I, the aggregate comparison is suggestive of an increase to unprecedented levels. In sectoral terms, FDI has mirrored trade over this time period by shifting away from natural resources and raw materials (the 'primary' sector) towards manufacturing and, more recently, services.

Obviously, such historical comparisons come with some caveats. For one thing, they are affected in important ways by fundamental shifts in relative exchange rates (and purchasing power). For another, they are based on book values rather than

Table 3 Outward FDI stock as a percentage of GDP

	1914	*1938*	*1960*	*1980*	*1985*	*1990*	*1995*	*1997*
France	21.1	27.8	6.8	2.7	6.0	9.2	12.0	13.6
Germany	11.1	0.8	1.1	5.3	9.7	9.2	11.1	14.4
Japan	0.8	9.9	1.2	1.9	3.3	6.9	4.7	6.5
UK	52.3	38.5	15.0	15.0	21.9	23.8	28.3	29.1
USA	7.2	8.5	6.2	8.1	6.2	7.9	10.0	10.6
World	9.0[a]	—	4.4	4.8	6.4	8.5[b]	—	11.8

[a]1913 data. [b]1991 data.
Figure for 1913 is an estimate. *Sources*: 1913–1991, World Investment Report 1994; 1997, World Investment Report 1999.

on market values of FDI. The magnitude of this omission seems to be large: data compiled by the US Commerce Department suggest that measurement on the basis of market values rather than book values doubles the estimated values of both US FDI abroad and FDI in the USA. One could argue that this omission leads to greater underestimation of the true values of FDI stocks towards the end of the 20th century than towards its beginning, because of higher inflation rates (until relatively recently) in the modern period and the increased importance of intangible assets that are more prone to slip through accountants' nets.

Once again, it is useful to look at the current level of integration of product markets through this channel in absolute terms, not just in relation to the levels experienced earlier. Assume, as in the analogous calculation undertaken earlier for trade, that inflows/outflows are, to a first approximation, balanced, and consider a country that accounts for x% of world investment. Then, if national borders did not affect investment patterns at all, foreign capital would account for $(100-x)$% of total investment in that country. The line with slope -1 in Figure 3 traces out this hypothetical benchmark of perfect integration as a function of national shares of gross fixed investment (x). It also plots the position of the 20 largest nations in these terms, based on their recorded FDI inflows. As in the case of trade, most of the nations cluster close to the origin, and all fall well below the hypothetical maximum. Also note that this broad conclusion would not be affected by looking at FDI outflows, although the positions of individual countries would shift substantially. China, for instance, would be less of a high-flier.

Overall, FDI intensity has, like trade intensity, reached unprecedented levels while continuing to fall far short of the levels that would be implied by perfect cross-border integration of product markets through this channel.

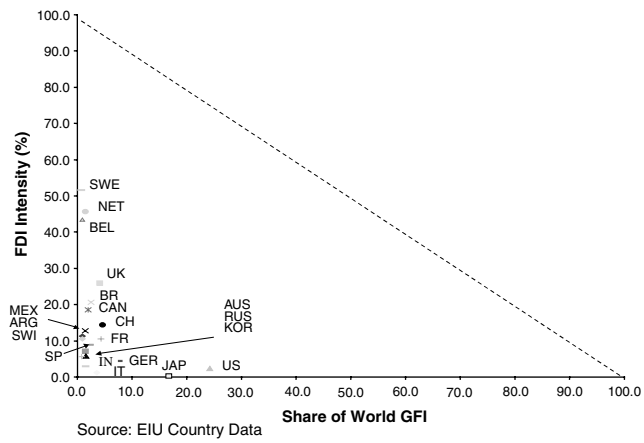


Figure 3 Actual *vs* perfect product market integration through FDI. *Source*: EIU country data.

Price integration

Viewed in terms of prices rather than quantities, the ultimate in market integration is achieved when two (or more) markets are yoked together by the so-called *law of one price* (LOP) – that is, prices equalize across them. Implicit in LOP is a (strong) zero-arbitrage-profits principle. Note that the degree of price integration of product markets can be high even when the quantity flows across them are limited – for example, for some commodities whose local prices are pegged to world benchmark prices, including ones with high value-to-weight ratios. As a result, economists often treat tests of market integration based on prices as being more definitive than tests based on quantities.

Quantity-based tests of cross-border market integration predominate, nonetheless, because, except for (nearly) perfect commodities, tests of price integration are generally hampered by the lack of

data on local currency prices of identical products across countries. The relatively few studies of products and services that meet these objections generally indicate substantial, sustained departures from LOP. Cross-country price dispersions tend to be large and to die down at a slow pace, and there is little evidence of recent movement toward smaller dispersions or speedier dampening (Rogoff, 1996). In conjunction with the data presented earlier concerning integration through trade and FDI flows, an overall inference that product market integration has increased significantly in recent decades, while continuing to fall far short of perfection, seems most plausible.

Factor market integration

Product markets are not the only type of market whose cross-border integration one might find interesting; factor markets of various types are also candidates for attention. This section presents and discusses evidence on the extent of cross-border integration of markets for capital, labor, and knowledge, in that order. Both quantity-based and price-based measures of integration are looked at wherever possible.

Capital

The previous section's discussion of FDI can be broadened to look at international capital flows over the last 100 years.[3] Because of identities in national income accounting, countries' net capital flows can be measured as the reverse of their current account balances. Data assembled by Obstfeld and Taylor (1997) on absolute net capital flows divided by GDPs for 12 countries suggest that this index of capital mobility has increased in recent decades, but was higher still around the beginning of the 20th century (see Table 4). Note that the impressive performance 100 years ago was accomplished in spite of informational and contracting problems. Such problems were, most likely, much more severe given the lack of generally accepted accounting principles and commensurately weak reporting requirements.

Of course, not all capital flows are equally important from the perspective of economic globalization. In particular, the recent period has seen a surge in short-run flows, or at least transactions, that is most strikingly evident in the volume of foreign exchange transactions, which exceeds $1 trillion *daily*. Foreign exchange trading can, however, be regarded as a response to a source of volatility – exchange rate risk – that was mitigated significantly in the earlier period by the prevalence of the gold standard. For this reason, and because most trades of this sort seem to be purely speculative, it is problematic to use the size of foreign exchange markets today to infer a much greater level of cross-border integration of capital markets than at the beginning of the century.

This suggests focusing attention on long-run capital flows, which include portfolio investment as well as FDI. Portfolio investment has increased significantly in absolute terms in recent decades, but seems to have failed to keep pace with FDI, with its share slipping from about two-thirds of total long-run cross-border investment in the early 20th century to about one-half today (Bloomfield, 1968). Nevertheless, the range of securities traded today across borders is much broader, in type as well as in number – a shift that, some argue, has contributed to increased cross-border integration along this dimension.

Table 4 Size of net capital flows since 1870 (mean absolute value of current account as percentage of GDP, annual data)

Period	*Arg*	*Aus*	*Can*	*Den*	*Fra*	*Ger*	*Ita*	*Jap*	*Nor*	*Swe*	*UK*	*USA*	*All*
1870–1889	18.7	8.2	7.0	1.9	2.4	1.7	1.2	0.6	1.6	3.2	4.6	0.7	3.7
1890–1913	6.2	4.1	7.0	2.9	1.3	1.5	1.8	2.4	4.2	2.3	4.6	1.0	3.3
1914–1918	2.7	3.4	3.6	5.1	—	—	11.6	6.8	3.8	6.5	3.1	4.1	5.1[a]
1919–1926	4.9	4.2	2.5	1.2	2.8	2.4	4.2	2.1	4.9	2.0	2.7	1.7	3.1
1927–1931	3.7	5.9	2.7	0.7	1.4	2.0	1.5	0.6	2.0	1.8	1.9	0.7	2.1
1932–1939	1.6	1.7	2.6	0.8	1.0	0.6	0.7	1.0	1.1	1.5	1.1	0.4	1.2
1940–1946	4.8	3.5	3.3	2.3	—	—	3.4	1.0	4.9	2.0	7.2	1.1	3.2[a]
1947–1959	2.3	3.4	2.3	1.4	1.5	2.0	1.4	1.3	3.1	1.1	1.2	0.6	1.8
1960–1973	1.0	2.3	1.2	1.9	0.6	1.0	2.1	1.0	2.4	0.7	0.8	0.5	1.3
1974–1989	1.9	3.6	1.7	3.2	0.8	2.1	1.3	1.8	5.2	1.5	1.5	1.4	2.2
1989–1996	2.0	4.5	4.0	1.8	0.7	2.7	1.6	2.1	2.9	2.0	2.6	1.2	2.3

Source: Obstfeld and Taylor (1997).
a: Average with some countries missing.

International financial crises represent the flip side of international capital mobility. Once again, historical comparisons suggest that international financial crises, particularly in emerging markets, are not without precedent. Thus data on the currency and banking crises experienced by 21 countries between 1880 and 1998 indicate that the most severe crises, on average, were in the interwar period, followed by the prewar period; postwar crises, in contrast, have been milder in terms of the drops in output experienced, and shorter-lived (Bordo *et al.*, 1999). And even when the sample is restricted to emerging countries, recent levels of instability do no worse than 'match' prewar levels, in which the gold standard acted as a crisis transmission belt, and emerging countries, at least, tended to lack lenders of last resort.[4]

In addition to these historical comparisons, quantity-based measures also permit some inferences about the absolute level of cross-border integration of capital markets. As in the case of trade, the professional curiosity of economists has focused on smaller-than-expected flows (or stocks). Probably the most famous 'anomaly' of this sort is the one uncovered by Feldstein and Horioka (1980), who calculated a 90% correlation between domestic savings and domestic investment across a panel of countries. Their estimate is much higher than benchmark models that assume perfect capital mobility would lead us to expect. Another anomaly that points in the same direction concerns what is called home-country bias: investors in each country hold much larger proportions of their wealth in the form of domestic securities than they would with internationally well-diversified portfolios. Thus, by one estimate, US investors should have held more than half their wealth in foreign equities in the 1980s, instead of the less than 10% that they actually held (Lewis, 1995).

Price-based measures of capital market integration – with price integration reinterpreted in terms of the equalization of rates of return on common or comparable securities across national boundaries – supply additional evidence about the continued segmentation of capital markets. One benchmark example is provided by Obstfeld and Taylor's (1997) comparison of 1-year interest rates on sterling-denominated assets sold in London and in New York over the last 100-plus years. Figure 4 tracks the standard deviation of differences in returns in the two cities as an inverse measure of capital market integration. The data indicate significant cross-border integration of capital markets prior to 1914, the breakdown of that integration in the interwar period, and its slow restoration in the postwar period. Qualitatively similar conclusions are suggested by comparing real rather than nominal returns, although that does increase the standard deviation of the dispersion of returns, presumably reflecting the effects of currency risk, both nominal and real.[5] At a more macro level, studies of returns, such as Bekaert and Harvey (1995), indicate that the cointegration of capital markets varies greatly in its level and extent over time.

Overall, like product market integration, capital market integration has increased significantly in recent decades, but seems to continue to fall far short of perfection.

Labor

Data on the cross-border integration of labor markets are sparser than for product or capital markets. However, they generally suggest that the number of international migrants (defined as people residing in foreign countries for more than 1 year) has grown with world population in recent decades, but represents a smaller share of world population than 100 years ago. With regard to the first point, there were, according to the World Migration Report, an estimated 150 million long-term international migrants in 2000, or 2.5% of world population (Martin, 2000). The comparable numbers for 1965 were 75 million migrants and 2.2% of world population.

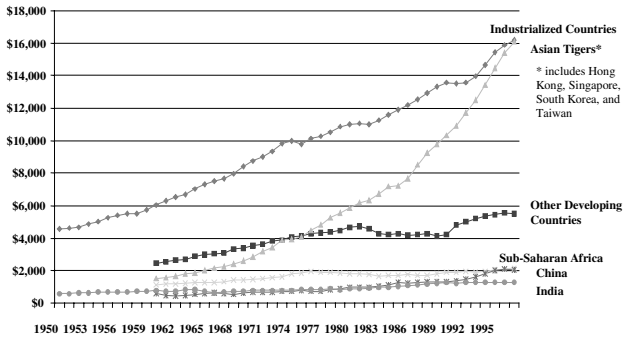
Over a longer time frame, the period between 1880 and 1915/1920 stands out as the heyday of international migration. During these years, 32 million people migrated from Europe, most of them to the USA (Kenwood and Lougheed, 1989). In addition, there were 6–8 million net migrants – mostly 'coolie' or indentured labor – from India,

Source: Maurice Obstfeld and Alan Taylor, "The Great Depression As A Watershed: International Capital Mobility Over the Long Run," NBER Working Paper 5960, March 1997.

Figure 4 Standard deviation of nominal return differentials. *Source*: Obstfeld and Taylor (1997).

China, and other Asian countries to the rest of the world (Held *et al.*, 1999, 293–295, 311). Adding in other cross-border movements could push the total past 45 million, or 3% of world population in 1900. Higher migration rates 100 years ago are also evident in country-level data – for example, for the largest receiver, the USA. Thus census data indicate that 14% of the US population was foreign-born at the turn of the century, compared with 10% today (Dune, 2001). Note that, through a substantial part of the earlier period, a number of large receivers, including the USA, placed no restrictions on immigration.

Turning from quantity-based to price-based measures, the most obvious indicator of cross-border integration of labor markets would be the cross-border convergence of wages. Data on the evolution of average per capita incomes (a rough and ready proxy for average wages) indicate that, while incomes in industrialized countries have tended to converge over the last few decades, a few Asian 'tigers' have been the only countries able to break away from the rest of the developing world and catch up with the industrialized world (see Figure 5).[6] More sophisticated tests confirm this conclusion, and indicate that the failure of most developing countries to catch up can be reconciled only with a weaker notion of convergence – *conditional convergence* (Barro and Sala-i-Martin, 1995). Conditional convergence allows for differences in the steady-state incomes toward which different economies are trending, based on differences along dimensions such as investment, education, and population growth. Human capital turns out, in attempts to fit conditional convergence models to the data, to have a particularly marked effect on the predicted extent of convergence.



Source: Bruce Scott, Economic Strategies of Nations, adapted from the Penn World Tables and the World Bank.

Figure 5 Convergence? GDP per capita across economic groups, 1950–1997 (PPP-adjusted). *Source*: Scott (2000), adapted from the *Penn World Tables* and the World Bank).

Taking a somewhat longer view, it is worth emphasizing that the 19th century apparently saw a divergence, rather than a convergence, of incomes across countries that has been only partially reversed in the 20th century (Baldwin and Martin, 1999). So, over that kind of time frame, the dispersion of incomes across countries increased, in net terms, instead of decreasing. This, along with the other data presented in this subsection, would seem to imply skepticism about the extent to which labor markets have integrated across national boundaries.

Knowledge

The other types of cross-border flows that have been discussed already can carry knowledge across national borders as well, since it can be congealed in products, embedded in capital equipment, vested in skilled personnel, etc. Given the topics already covered in this paper, this subsection will focus on cross-border flows of knowledge in pure, disembodied form. In addition to rounding out the coverage, this focus has the advantage of offering a relatively simple benchmark: as disembodied knowledge has a 'non-rival' character – that is, as its use in one market, whether defined in geographic or product-related terms, should not preclude its application to others – perfect cross-border integration in this context should imply that knowledge, once developed anywhere in the world, is available everywhere else as well.

The conceptual simplicity of focusing on disembodied knowledge flows does, however, exact an empirical toll: because of their intrinsic intangibility, such flows are particularly hard to measure. The evidence presented in this subsection is correspondingly sketchy. It tentatively suggests, however, that there have been substantial increases in cross-border knowledge flows over time and, a bit more definitely, that cross-border integration in this regard nevertheless remains very incomplete. Consider these inferences in turn.

With regard to technological knowledge, cross-border licensing provides one indicator that supports the inference of increased cross-border knowledge flows over time. Such licensing is not new – international royalties accounted for a significant component of James Watt's receipts from his steam engine patents in the early nineteenth century, for example. However, the available data, along with informational and contracting problems that were even more acute early on than they are now, suggest that the voluntary transfer of

knowledge across national borders is far more common than it used to be. Concerning more general managerial knowledge, the post-World War II period, in particular, has seen the development of new types of organizations and organizational forms that have also facilitated knowledge transfer. Franchising, which really emerged in its modern form in the USA in the 1950s, is one example. And management consulting firms, which began their international expansion at roughly the same time, are regarded as having evolved into major channels for the international diffusion of new managerial techniques (Micklethwait and Wooldridge, 2000). Of course, the spread of multinational enterprises, intent on applying the same technological and managerial knowledge to more and more markets, points in the same direction. So, arguably, does the explosion in cross-border information transmission capacity since the early 1980s.

These increases in cross-border knowledge flows notwithstanding, there are also numerous indications of the continued geographical localization of knowledge. The survey evidence on the size of knowledge transfer costs, although not altogether satisfying, is suggestive. An influential study by Teece (1977) concluded that transfer costs accounted for an average of 19% of total project costs – and ranged from 2 to 59% – in a sample of technology transfers in the chemicals, petroleum refining, and machinery sectors. Outcome-based perspectives that point in the same direction are numerous. Through the 1980s, nearly 90% of the US patents taken out by the world's 600 largest corporations listed the inventor as a resident of the corporation's 'home base' (Patel and Pavitt, 1994). Patents whose inventors reside in the same country are typically 30–80% more likely to cite each other than inventors from other countries, and, on average, these citations come 1 year sooner (Jaffe and Trajtenberg, 1999). A recent study of R&D and productivity spillovers across large OECD economies estimated the average elasticity of such spillovers with respect to distance as −1 to −2.4% (Keller, 2000). The importance of locally dense information flows is also evident in internationally successful geographic clusters.[7] Such perspectives remind us that, although the availability of information transmission capacity may help knowledge to travel across national borders, it is far from sufficient to make knowledge perfectly portable.

Semiglobalization as a research program

In summary, most measures of cross-border economic integration have increased significantly in the last few decades, but still fall far short of the theoretical extreme of total integration. This empirical conclusion of semiglobalization is valuable in and of itself given the ongoing debate between two polar perspectives: one maintaining that we have achieved a state of (near) globality, in which there is so much integration across national borders that the latter can, for many practical purposes, be ignored, and the other professing skepticism that there is anything fundamentally new about the levels of cross-border integration that have been achieved to date (Giddens, 1996; Held *et al.*, 1999). It seems possible to achieve some closure to this debate, at least in the economic arena.

As a bonus, semiglobalization affords – unlike alternate possibilities – room for international business strategy to have content that is distinctive from 'mainstream' (single country or location) business strategy or, for that matter, corporate strategy. To make this point as precisely as possible, it is useful to classify the field of strategy into the domains depicted in Table 5. Note the somewhat paradoxical character of domain 1, mainstream business strategy: by assuming total specificity, it allots the least attention to understanding either business/usage-specificity or location-specificity. As a result, we have to look to domain 2, that of mainstream corporate strategy, for interesting analyses of variations in the extent to which key firm activities, resources or knowledge are business-

Table 5 Strategy domains

		Increasing attention to business-specificity/non-specificity →	
Focus		*Single business*	*Multiple businesses*
Increasing attention to location-specificity/non-specificity ↓	Single country/location	1. (Mainstream) business strategy	2. (Mainstream) corporate strategy
	Multiple countries/locations	3. International business strategy	4. International corporate strategy

specific as opposed to generic (fungible across businesses). And we must also look to domain 3, that of international business strategy, for analyses of variations in the extent to which activities, resources or knowledge are location-specific as opposed to free-flowing (fungible across locations). Domain 4, featuring international corporate strategy, purports to combine both business/usage-specificity and domain-specificity, but it is the one about which we currently know the least.

The key point to be made here is that semiglobalization and the location-specificity or geographic segmentation of markets implicit in it is critical to the possibility of domain 3 having content qualitatively distinct from domains 1 and 2. Begin by comparing domains 3 and 1. The critical role of semiglobalization can be illustrated by contrasting it with the extreme alternatives of markets totally insulated from each other by national boundaries or, at the opposite extreme, perfectly integrated with each other across them. Obviously, with complete market insulation, firms could simply decompose their choice problems into country-sized chunks. And if markets were completely integrated with each other, the analysis of multiple countries could, once again, be folded back to the single-country base case that is the staple of mainstream business strategy (domain 1), as there would effectively be a single large country. Situations with intermediate levels of cross-border integration cannot be dealt with in the same way, however, in that they do not lend themselves to purely country-level analysis.[8]

Next, compare domain 3 with domain 2. The role of semiglobalization or, more precisely, location-specificity in affording scope for international business strategy to have content distinctive from mainstream corporate strategy is, perhaps, subtler but no less important than in the previous case. Specifically, note that the insights into firm boundaries and expansion derived, respectively, from Coase (1937) and Penrose (1959), were not only worked into international business strategy by Buckley and Casson (1976), among others, but also into mainstream corporate strategy by, in particular, a large body of work on corporate diversification. So, although such insights have been very valuable, they do not by themselves imply content for domain 3 that is conceptually or otherwise qualitatively distinct from that of domain 2; they are a common element of both. For that, what is needed is attention to operations across multiple locations that are distinct from, but not entirely independent of, each other.

Looking more broadly across domains 1–3, Table 5 indicates that location-specificity must be invoked to distinguish domain 3 from mainstream strategy of the business and corporate varieties (domains 1 and 2). Semiglobalization ensures such location-specificity, and therefore supplies a conceptually coherent foundation for further analyses at the market and firm levels.

Market/factor-level issues

The preceding argument is equivalent, in some respects, to saying that international business strategy should pay more attention to market imperfections involving location-specificity rather than business/usage-specificity. Those who work primarily on the latter are likely to be somewhat skeptical. One frequently cited concern in this context is the argument that business/usage-specificity affords more room for firm-specific advantages (and disadvantages) than location-specificity. But given complementarities among activities, resources, etc., this argument is a bit of a red herring.

To see why, consider a stylized example in which there are two factors – knowledge, denoted by N (to avoid confusion with K for capital), and labor, denoted by L, with N entirely business/usage-specific and subject to internalization pressures as a result, and L entirely location-specific. Given complementarities between L and N, profit-maximizing firms cannot afford to ignore the labor cost differences across their various cross-border options even if their management of L itself does not offer the prospect for sustainable firm-specific advantages. In particular, if cross-border differences in the cost of L loom sufficiently large, economic viability will require either that they be capitalized on or that some powerful way of countering them be found. It is hard to see how creative thinking along either of these lines is fostered by suppressing consideration of location-specificity, even if it applies only to a 'generic' factor, L. And even if labor-cost variations cannot underpin sustained competitive advantages for the firms that exploit them because all competitors tap into them, exploitation of them may be necessary to avoid unsustainable disadvantages. The whole point of incomplete integration, after all, is that such factor price equalization will occur, if at all, only in the very long run and cannot, therefore, be assumed in decisions being made in the short-to-medium run.

Analogous points can be made in the context of K as opposed to L. Note that if capital markets were

perfectly integrated, there would be one global pool of capital available to fund ventures, and decisions on whether to proceed with investments could be separated from decisions about how to finance them. Such separation of investment and financing decisions, while often assumed domestically, does not fare well in an international context. Foreign investment is, to a significant extent, financed locally in the host country. Thus Feldstein (1995) concluded that only 20% of the value of assets owned by US affiliates abroad was financed by cross-border flows of capital from the USA, with an additional 18% accounted for by retained earnings and the rest representing financing with foreign debt and equity. In such a context, it is hard to believe that MNEs allocate capital globally to equalize marginal returns on investment projects wherever they are undertaken. Instead, firms' investments in real assets seem to be affected by local financing possibilities – or wealth effects. And the impact of financial variables on real ones may be more than marginal: some major merger and acquisition waves, for example, seem to have been driven, in large part, by changes in exchange rates (e.g. Blonigen, 1997). This is just one of many areas for additional research related to semiglobalization – in this case, concerning segmented international markets for capital and how they interact with real (non-financial) variables.[9]

The broader point that emerges from this discussion is that semiglobalization or incomplete integration is often underplayed because of inadequate attention to the location-specificity of L and K on the grounds that they are generic factors of production incapable of sustaining firm-specific advantages. Capital also seems to get pulled down, as markets for it are supposed to be subject to a high degree of cross-border integration[10] and labor because it is seen to represent a 'low' basis for cross-border competition. In any case, whatever the precise reasoning, the effect is to devalue capital and labor for being relatively non-specialized factors and to focus attention on knowledge. This may seem a reasonable approach. However, recall that it is controverted by the evidence, summarized in the previous section, that markets for capital and labor, just like markets for knowledge, exhibit significant barriers to cross-border integration. As a result, even the apparently unspecialized factors of capital and labor are specialized at the level of location, if in no other sense. Thus they can assume strategic importance in an international context and should be attended to.

Having said that K and L merit more attention than they have historically attracted, it must be added that this is not necessarily inconsistent with the focus of much of the relevant literature, including Buckley and Casson (1976) early on, on knowledge, or as the key factor underlying the market imperfections that are most critical for international business. Instead, what the discussion implies in this regard is that claims of special status for N as a factor in international business strategy (domain 3 in Table 5) have to be based on the location-specificity of N. Otherwise, international business strategy and multimarket corporate strategy will be difficult to differentiate. Also note that in some cross-border contexts, at least, considerations of location-specificity do seem to dominate in knowledge-related decision making (e.g. Alcacer and Chung, 2001). Nevertheless, there would seem to be great demand for additional research on this much-discussed topic.

Firm-level issues

In addition to flagging factors/products subject to location-specificity as being salient from the perspective of international business strategy, the diagnosis of semiglobalization sheds some light on the content of such strategy at the firm (as opposed to market) level. Most broadly, semiglobalization significantly enriches the strategy space open to firms relative to the straitjacketing structural extremes of (1) complete isolation at the borders, which would dictate localization, and (2) complete integration, which would dictate standardization. Cases intermediate to 'one country' and 'one world' present decision-makers with more than one obvious strategy option. Therefore these cases require some higher-level decisions about how their firms are going to compete to add value.

There are many specific ways in which firms might try to add value through cross-border operations under conditions of incomplete integration, but they can be grouped in terms of two fundamental economic functions – in the sense of mechanisms for adding value, as opposed to marketing, production, etc. – that organizations try to fulfill by crossing borders. The first function, *aggregation*, involves exploiting the similarities across countries, while somehow side-stepping the differences among them, so as to tap increasing returns to scale. The second, *arbitrage*, involves exploiting differences among countries by taking advantage of variations in absolute costs or willingness-to-pay. The prototypical aggregator is a

firm that takes advantage of (partly) locationally mobile resources subject to increasing returns to perform roughly the same activities in different countries (a 'horizontal' MNE). The prototypical arbitrageur takes advantage of international differences by geographically separating activities in an integrated vertical chain (the vertical MNE).

Arbitrage was the function that dominated early international economic activity, as evident in the operations of the trading companies chartered in the 16th and 17th centuries, the whaling fleets of the 18th century, and the vertically integrated agricultural and extractive (mining) companies that emerged in the 19th century (Ghemawat, 2000). In contrast, aggregation first came to the fore – with the possible exception of a few international banking chains that emerged earlier in the 19th century – with the manufacturing multinationals that began to appear in the second half of the 19th century. Despite this late start, however, casual evidence suggests that aggregation has commandeered researchers' attention to the point where the arbitrage function is often ignored. The long-running discussion of the tensions between integration and responsiveness and their resolution is a good example (Prahalad and Doz, 1987). These issues are salient in the context of aggregation, but not in the context of arbitrage, which is often passed over in silence as a result. Note that such a bias towards aggregation would lead to suboptimal responses to conditions of incomplete integration because of an undue emphasis on treating important differences across countries as sources of difficulty to be ignored or minimized (as part of an aggregation approach) rather than as possible sources of value (as part of an arbitrage approach). To consider all possible levers of value, it is important to supplement horizontal approaches that emphasize aggregation with vertical approaches that seek to capitalize on (as opposed to merely cope with) differences – that is, that emphasize arbitrage.

Unbundling the two functions should help in this regard. To start with the one that tends to get overlooked more, arbitrage, the schema used earlier in this paper to distinguish among markets for products, capital, labor, and knowledge also suggests a correspondingly broad array of arbitrage-based mechanisms for (potentially) adding value. Firms can arbitrage the incomplete integration of product markets across borders by becoming traders. Capital market differences provide them with a strong incentive to account for international differences in the cost of capital. They can arbitrage labor cost differences by relocating labor-intensive activities to countries with low labor costs. And they can try to harness knowledge differences and, more broadly, geographically dispersed knowledge by making asset-seeking (rather than asset-exploiting) investments in critical locations – a task that involves detailed coordination across multiple locations rather than, as some would have it, the death of geography.

The aggregation function also lends itself to unbundling. Here, there are continua of possibilities ranging, as noted above, from the complete localization of a business by country at one extreme to complete standardization across countries at the other. Interestingly distinct – and progressively less researched – intermediate possibilities include:

(1) adaptation, in which the business model originated in the 'home base' becomes the basis for local modification;
(2) platform or front-to-back approaches, in which certain core features of a business model (the 'platform') are preset globally, while others can be altered in light of local conditions; and
(3) clustering, which emphasizes grouping countries – regionalization is a subcase – in order to pursue commonalities more aggressively than would be possible with pure country-by-country adaptation.

Developing a contingency theory of choice that operates this level of disaggregation would seem to be a high priority.

An additional assumption that is worth discussing in this context is the textbook distinction between horizontal MNEs that emphasize aggregation and vertical MNEs that emphasize arbitrage. This dichotomy assumes that it is often possible – and useful – to distinguish firms in terms of the one function that is economically central, over long periods of time, to their strategies for adding value by competing around the world.[11] If one accepts this, then it is clear that there are two mutually exclusive approaches to achieving geographic coherence or fit – the international business analogue of mainstream business strategy's focus on internal and external fit at the level of the individual business, and corporate strategy's focus on fit or coherence across businesses. But there also seem to be indications that large multinationals engage, at least to some extent, in both aggregation

and arbitrage. This naturally raises the question of the extent to which it is possible to mix and match across aggregation-oriented and arbitrage-oriented activities. Or to put matters more starkly, how feasible are transformation strategies that extensively exploit both aggregation opportunities and arbitrage possibilities?

A final question concerns whether intra-firm cross-border economic activity should be seen as a substitute for or driver of market integration. It is customary to think of (cross-border) firms as remedies for the infirmities of (cross-border) markets. However, the importance of intra-firm trade and FDI, in particular, hints that it might make sense to shift towards seeing firms as global connectors or conduits responsible, to a significant extent, for cross-border integration rather than as islands embedded in seas of market relationships. Of course, whether firms' cross-border activities substitute for or complement the cross-border integration of markets is yet another open and obviously important agenda item for future research.

Conclusions

Accounts of the cross-border integration of markets have tended to get very wrapped up in the times in which they were written – perhaps too much so. Thus Deutsch and Eckstein (1961) emphasized that, by the 1950s, the internationalization of transactions had declined significantly since the beginning of the 20th century, and averred that this trend was unlikely to be reversed any time soon. Contrary to their predictions, cross-border economic activity surged in the 1960s onward and, as it breached prewar records, inspired forked responses. Globalists stressed that international economic integration had reached new heights, while skeptics insisted that it had barely returned to levels experienced nearly a century earlier. Globalists gained confidence with the fall of the Berlin Wall in 1989 and the rapid growth in much of Asia through much of the 1990s. But then came the Asian financial crisis, episodes of instability in Russia and Latin America, a perceived 'globalization backlash,' a global economic slowdown, and the war on global terrorism. By mid-2002, the mood, at least among practitioners, seemed to be one of skepticism rather than optimism about globalization.

The empirical evidence reviewed in this article suggests that it might be preferable to take a more measured, historically self-conscious perspective on cross-border integration instead of frequently announcing changes in its direction or speed. Specifically, the empirical review indicated that most measures of market integration have scaled new heights in the last few decades, but still fall far short of economic theory's ideal of perfect integration. Looking forward, levels of cross-border integration may increase, stagnate or even suffer a sharp reversal if the experience between and during the two World Wars is any indication of the possibilities: while technological changes may be irreversible, political changes need not be. But given the parameters of the current situation, it seems unlikely that increases will any time soon yield a state in which the differences among countries can be ignored, multinationals' best efforts to connect markets across borders notwithstanding. Or that decreases could soon lead to a state in which cross-border linkages can be forgotten about. So, one does not have to make a precise forecast to diagnose that semiglobalization as a condition is sufficiently broad to persist for some time to come. Achieving similar stability in attitudes toward cross-border operations would seem preferable to manic-depressive swings in attitudes about the outlook, if only for purely pragmatic reasons.

The diagnosis of semiglobalization does more than just supply a relatively stable frame of reference for thinking about the environment of cross-border operations. Semiglobalization also calls attention to the critical role that location-specificity plays in the prospects of distinctive content for international business strategy relative to mainstream business and corporate strategy. In addition, it flags factors/products subject to location-specificity as being salient from the perspective of international business. And, finally, it highlights the scope for strategies that strive to capitalize on the (large) residual barriers to cross-border integration, as well as those that simply try to cope with them.

Such considerations motivate the modest proposal that semiglobalization or location-specificity merits the status of a major research program in international business. In other words, that a significant volume of research activity should be redirected along lines that take explicit account of both the importance and the incompleteness of the integration of markets across borders. In addition to reflecting empirical reality, a research program of this sort would directly address the apparent dearth of 'big research questions' in

international business. As Buckley (2002, 370) recently put it:

> International business has succeeded because it has focused on, in sequence, a number of big questions, which arise from empirical developments in the world economy. The agenda is stalled because no such big question has currently been identified. This calls into question the separate existence of the subject area. It raises the old problem of the relationship between international business and other functional areas of management and social science.

From this perspective, the issue is not whether a big research question is needed at this juncture in the development of international business, but, instead, what it should be about: semiglobalization / location-specificity or something else?

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Notes

[1]While location-specificity can also operate at the local or (intranational) regional level, a full treatment of it at all these levels of analyses is beyond the scope of this paper, even though many of the analytical issues that arise are similar.

[2]The disparity is even greater if one recognizes that the denominator of the ratio should really be a measure of gross sales rather than a value-added measure like GDP.

[3]Foreign direct investment currently accounts for roughly one-half of total foreign investment, but its share was significantly smaller at the start of the 20th century. See Bloomfield (1968, 3–4), cited in Bordo et al. (1999).

[4]Note that the spread of domestic safety nets does increase the likelihood that banking crises will turn into currency crises.

[5]For further discussion of currency risk, see Frankel (1992).

[6]Note the caveat that the extent of catch-up by the Asian tigers would look somewhat less remarkable if the data in Figure 5 were updated to take account of the Asian currency crisis.

[7]The other (overlapping) reasons for the localization of international competitiveness identified by Porter (1990) are sophisticated local demand and the local availability of specialized inputs and complements as well as basic factors of production.

[8]This point can be demonstrated formally in the context of standard supply–demand analysis. To start at one extreme, with complete insulation between two country markets, the price and quantity outcomes can be pinned down (under the assumption of atomistic competition) at the intersection of supply and demand curves in each market. At the other extreme, with complete integration – that is, zero extra costs of trading, transporting, transacting and so on across national boundaries – one could still add up the supply curves for the two markets on the one hand and their demand curves on the other and use the point of intersection of the two aggregate curves to determine the (common) prices and the quantities in the unified market. But the continuum of situations between zero and complete economic integration that I refer to as semi-globalization creates additional challenges. Given semi-globalization, the analysis of prices and quantities in the two markets cannot be reduced to supply–demand analysis of an individual market. Instead, attention has to be paid to distinct markets that are neither totally segmented nor totally integrated – an intrinsically more complex, and interesting, setup.

[9]For further discussion along these lines, see Caves (1998).

[10]Such integration would make access to a global pool of capital a 'given' for any worthy enterprise and thereby limit the scope for purely financial sources of advantage or disadvantage.

[11]Caves (1996) also identifies a third, residual category of multinational enterprise: international diversifiers whose operations in different countries are neither horizontally nor vertically related to each other. These can be thought of as falling in domain 4 of Table 5 rather than domain 3.

References

Alcacer, J. and Chung, W. (2001) 'Knowledge seeking, human capital and location choice of foreign entrants in the United States', Working Paper, Stern School of Business, New York University.

Baldwin, R.E. and Martin, P. (1999) *Two Waves of Globalization: Superficial Similarities, Fundamental Differences*, National Bureau of Economic Research: Cambridge, MA, NBER Working Paper No. 6904.

Barro, R.J. and Sala-i-Martin, X. (1995) *Economic Growth*, McGraw-Hill: New York.
Bekaert, G. and Harvey, C.R. (1995) 'Time-varying world market integration', *Journal of Finance* **50**(2): 403–444.
Blonigen, B.A. (1997) 'Firm-specific assets and the link between exchange rates and foreign direct investment', *American Economic Review* **87**(3): 447–465.
Bloomfield, A.I. (1968) *Patterns of Fluctuation in International Finance Before 1914*, Princeton Studies in International Finance No. 21, International Finance Section, Department of Economics, Princeton University.
Bordo, M.D., Eichengreen, B. and Irwin, D.A. (1999) *Is Globalization Today Really Different than Globalization a Hundred Years Ago?*, National Bureau of Economic Research: Cambridge, MA, NBER Working Paper 7195 (Prepared for the Brookings Trade Policy Forum on Governing in a Global Economy, Washington, DC, 15–16 April 1999. Published: shorter version in Austrian Economic Papers, Vols. 1 and 2, 2000).
Buckley, P.J. (2002) 'Is the international business agenda running out of steam', *Journal of International Business Studies* **33**(2): 365–373.
Buckley, P.J. and Casson, M. (1976) *The Future of the Multinational Enterprise*, Macmillan: London.
Caves, R.E. (1996) *Multinational Enterprise and Economic Analysis*, Cambridge University Press: Cambridge.
Caves, R.E. (1998) 'Research on international business: problems and prospects', *Journal of International Business Studies* **29**(1): 5–19.
Coase, R.H. (1937) 'The nature of the firm', *Economica* **4**(16): 396–405.
Deutsch, K.W. and Eckstein, A. (1961) 'National industrialization and the declining share of the international economic sector, 1890–1959', *World Politics* **13**(2): 267–272.
Dune, N. (2001) 'US population is now more than 10% foreign-born', *Financial Times*, 4 January 2001, The Americas, p. 4.
Feenstra, RC (1998) 'Integration of trade and disintegration of production in the global economy', *Journal of Economic Perspectives* **12**(4): 31–50.
Feldstein, M (1995) 'The Effects of Outbound Foreign Direct Investment on the Domestic Capital Stock', in M. Feldstein, J. Hines and R.G. Hubbard (eds.) *The Effects of Taxation on Multinational Corporations*, University of Chicago Press: Chicago, pp: 43–63.
Feldstein, M. and Horioka, C. (1980) 'Domestic savings and international capital flows', *Economic Journal* **90**(358): 314–329.
Frankel, J.A. (1992) 'Measuring international capital mobility: a review', *American Economic Review* **82**(2): 197–202.
Frankel, Jeffrey, A. (2001) 'Assessing the Efficiency Gain from Further Liberalization', in Porter, Roger B., Pierre Sauvé, Arvind Subramanian & Americo Beviglia Zampetti, (eds.) *Efficiency, equity, and legitimacy: the multilateral trading system at the millennium*, Brookings Institution Press: Washington, D.C.
Ghemawat, P. (2000) 'Global advantage: arbitrage, replication, and transformation', unpublished note, Harvard Business School, December.
Giddens, A. (1996) 'Keynote address at the United Nations Research Institute for Social Development, as excerpted in 'Essential matter'', *UNRISD News*, No. 15.
Held, D., McGrew, A.G., Goldblatt, D. and Perraton, J. (1999) *Global Transformations: Politics, Economics, and Culture*, Stanford University Press: Stanford.
Helliwell, J.F. (1998) *How Much Do National Borders Matter?*, Brookings Institution Press: Washington, DC.
Irwin, D.A. (1996) 'The United States in a new global economy? A century's perspective', *American Economic Review* **86**(2): 41–46.
Jaffe, A.B. and Trajtenberg, M. (1999) 'International knowledge flows: evidence from patent citations', *Economics of Innovation and New Technology* **8**(1–2): 105–136.
Keller, W. (2000) *Geographic Localization of International Technology Diffusion*, National Bureau of Economic Research: Cambridge, MA, NBER Working Paper No. 7509.
Kenwood, A.G. and Lougheed, A.L. (1989) *The Growth of the International Economy, 1920–1960*, Allen & Unwin: London.
Lewis, K.K. (1995) 'Puzzles in International Financial Markets', in G. Grossman and K. Rogoff (eds.) *Handbook of International Economics*, Vol. III, Elsevier Science: Amsterdam. pp: 1913–1971.
Maddison, A. (1995) *Monitoring the World Economy: 1820–1992*, Development Centre of the Organization for Economic Cooperation and Development: Paris.
Martin, S.F. (ed.) (2000) *World Migration Report: 2000*, Copublished by the International Organization for Migration and the United Nations.
McCallum, J. (1995) 'National borders matter: Canada–US regional trade patterns', *American Economic Review* **85**(3): 615–623.
Micklethwait, J. and Wooldridge, A. (2000) *A Future Perfect: The Challenge and Hidden Promise of Globalization*, Crown Business: New York.
Obstfeld, M. and Taylor, A. (1997) *The Great Depression as a Watershed: International Capital Mobility over the Long Run*, National Bureau of Economic Research: Cambridge, MA, NBER Working Paper 5960.
Patel, P. and Pavitt, K. (1994) *National Innovation Systems: Why they are Important and How they Might be Measured and Compared*, Mimeo, Science Policy Research Unit, University of Sussex.
Penrose, E.T. (1959) *The Theory of the Growth of the Firm*, Basil Blackwell, Wiley: Oxford, New York.
Porter, M.E. (1990) *The Competitive Advantage of Nations*, Free Press: New York.
Prahalad, C.K. and Doz, Y. (1987) *The Multinational Mission: Balancing Local Demands and Global Vision*, Free Press: New York.
Rogoff, K. (1996) 'The purchasing power parity puzzle', *Journal of Economic Literature* **34**(2): 647–668.
Scott, B. (2000) *Economic Strategies of Nations*, Mimeo, Harvard Business School.
Teece, D.J. (1977) 'Technology transfer by multinational firms: the resource cost of transferring technological know-how', *The Economic Journal* **87**(346): 242–261.
UN Center on Transnational Corporations, World Investment Report (various issues).
World Economic Forum, Global Competitiveness Report (various issues).

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