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ORIGINAL PAPER

The quest for infrastructure development from a "market creation" perspective: China's "Belt and Road", Japan's "Quality Infrastructure" and the EU's "Connecting Europe and Asia"

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Abstract

The paper deals with the interplay of major international infrastructure initiatives, in particular China's Belt and Road Initiative, Japan's Partnership for Quality Infrastructure and the EU strategy on "Connecting Europe and Asia". Their co-evolution is interpreted as the creation and further development of a new market, whose characteristics like its complexity, its properties as an international public good and its oligopolistic supply structure create interesting insights. The paper finds that initiatives have adjusted to each other, in line with expectations from a market perspective. While China's initiative at first followed a "low-price" strategy, Japan reacted with a "quality infrastructure" approach, also winning support from multilateral fora like G7 and G20. With the Second Belt and Road Forum, China has signaled to move closer to this line as well, and the EU is pursuing a similar approach as Japan, signing a partnership agreement with it. Interpreting this interaction as an oligopolistic structure, a chaotic competitive process has so far been avoided. The contest is actually evolving towards superior solutions, raising the quality of institutional infrastructure initiatives and, hopefully, of specific projects as well.

Keywords Infrastructure · Connectivity · Belt and road initiative · China · Japan · European union

JEL classification F53 · F55 · H87 · L91 · O19 · P45

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1 Introduction

China's Belt and Road Initiative (BRI) for infrastructure development in Eurasia and beyond is one of the most intensively monitored developments in international economic relations in recent years. It is usually covered from an international relations perspective, focusing on political interests and stakeholders as well as geo-political considerations of actors. This paper employs a different perspective: The commencement and progress of initiatives like BRI in 2013 and Japan's Partnership for Quality Infrastructure (PQI) in 2015 is interpreted as the creation and further development of a new market, whose characteristics like the complexity of its very idiosyncratic product(s), its properties as an international public good and its oligopolistic supply structure create interesting and sometimes underrated insights. The paper also analyzes the EU's strategy from this perspective, which manifested itself resolutely only as late as September 2018 with the release of the Joint Communication on "Connecting Europe and Asia: Building blocks for an EU Strategy" (EC-HR 2018).

2 Creating a new political-economic market: Infrastructure and connectivity

How can one conceptionally approach the recent surge of global interest in infrastructure investment and connectivity (e.g., Khanna 2016) from an economic perspective? Apart from the usual economic factors like demand, supply and prices, in an entrepreneurial perspective objectively given market opportunities also need to be perceived and realized. From such a viewpoint, objective and subjective opportunities have to be identified and integrated, taking economic factors in a narrow sense into consideration, but also political constellations and cognitive factors (Companys and McMullen 2007). In that sense, "context matters" (Smith 2003: 486). The creation of a new market will be a progression of search and selection processes within domains that define "what is feasible, what is appropriate" (Nelson 2008: 7), but eventually they may go beyond it and establish new arenas for business, political and also civil society actors.

Obviously, infrastructure is not a "new" business in the sense of a novelty of products or production methods. In a European context, at least since Roman times people are aware of the importance of a well-executed road network for business, regional development, and also for political and geo-strategic interests. "New" as used here includes "every novel element of an activity" (Plummer et al. 2007: 366).

During the late 2000s, infrastructure and connectivity issues gained considerable new interest in Pacific Asia. Pivotal in this respect was a 2009 study of the Asian Development Bank (ADB) with the Asian Development Bank Institute (ADBI) that estimated the infrastructure needs of the Asian region to be a staggering eight trill US Dollars (USD) by 2020. Apart from replacement costs of some 2.6 trill USD, 5.4 trill USD were considered necessary to support the economic growth potential of the wider region (ADB and ADBI 2009). It was quite obvious that there was a considerable investment gap, given the magnitude of such figures. Bhattacharya and Romani (2013), based on data collected around 2010, estimated the investment gap of the emerging economies of the world to be around 50%, given an investment of around 1.8 to 2.3 trill USD per year and an annual spending of around 0.8 to 0.9 trill USD. Of that latter

amount, only about a quarter was contributed by the private sector, more than half through government budgets and only some 40 to 60 bn USD yearly through multilateral development banks (MDBs) and official development assistance (ODA), the remainder through national development banks and other developing country finance.

Why would the investment gap in infrastructure projects gain so much interest in the years before and around 2010? Focusing on the emerging economies of Asia and Asia-Pacific, there had been several initiatives already, including the Asian Land Transport Infrastructure Development (ALTID) initiative of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) from 1959, revised in 1992, or the Central Asia Regional Economic Cooperation (CAREC), supported by ADB from 1997, including the Xinjiang Uygur Autonomous Region and the province of Inner Mongolia of China. Early actors also included national initiatives, particularly from Japan (Pascha 2020): There was the 1997 "Eurasian diplomacy", the 2004 "Central Asia Plus Japan" initiative and the 2006 idea of an "Arc of Freedom and Prosperity". Therefore, the 2009 ADB proposal of a Pan-Asian Infrastructure Forum and of an Asian Infrastructure Fund hardly deserve to be considered novel. This can also be said of the Comprehensive Asia Development Plan (CADP) of 2010, submitted to the East Asia Summit of that year by the Research Institute for ASEAN and East Asia (ERIA), founded in 2006 by Japan and ASEAN. Both concepts, of ADB as well as ERIA's, did not take off as hoped for, but it took some more years, until 2013, before China unveiled its BRI to the world. While BRI is certainly the game-changer among the current wave of infrastructure initiatives, its basic ideas are not disruptive, but take up the earlier considerations. For instance, ADB and ADBI already argued in 2009:

> "This study's long-term vision is the creation of a seamless Asia: an integrated region connected by world-class environmental-friendly infrastructure networks that link national markets with distinct strengths, promote strong and sustainable economic growth, provide for people's basic needs, and thus help reduce poverty" (ADB and ADBI 2009: 26),

while ERIA describes CADP

> "… as a grand spatial design for infrastructure development in East Asia. The conceptual framework … demonstrates how the region can pursue deepening economic integration as well as narrowing development gaps" (ERIA 2012).

Both quotes could almost be seen as role models capturing major aspects of BRI. To understand the dynamics behind this connectedness of approaches, it will be helpful to discuss basic properties of infrastructure and connectivity, both as goods or types of goods and with respect to their market environment.

3 Infrastructure and connectivity from an economic perspective

According to the Cambridge Dictionary, infrastructure encompasses "the basic systems and services, such as transport and power supplies, that a country or organization uses in order to work effectively". It thus covers the structures "below" (*infra* in Latin) the

economy that are needed, under-structures both in a literal sense, like roads, sewers or underground cables, or in a more figurative sense like the electrical grid or digital networks. There is not only hard infrastructure like railways or bridges, but also soft infrastructure like the educational system or people-to-people networks (GICA 2018). Infrastructure is usually concerned with connecting various parts of the economy, so one can also speak of connectivity, and depending on how broad ranging the definition is, there is little difference between the two. Here, both terms are used interchangeably, infrastructure rather focusing on input aspects, connectivity rather concerned with output.

Infrastructure obviously encompasses a vast number of goods and services, with different size and qualitative characteristics. A local waterworks will be quite different from a railway system crossing various countries. Nevertheless, there are several characteristics that will be quite typical for a considerable number of infrastructure goods and services that are relevant for multilateral cooperation. Such factors include, somewhat overlapping, the following dozen:

1. Significant size, often transnational
2. Complex idiosyncratic product or service (including finance, local real estate, etc.) with high risk due to this complexity,
3. Complexity increasing further because of real-world developments
4. Often involving various public and private actors
5. Public good properties
6. Significant externalities, for instance on the environment, leading to issues of environmental sustainability
7. Political externalities
8. Few suppliers, often with a distinct national background
9. Price, (uncertain) quality and contract conditions as variables, experience good
10. Governance issues, also due to public-private involvement
11. Prone to rent-seeking
12. Frequently, natural monopolies and oligopolistic supply side

These factors can adequately explain a number of features of the recent surge of infrastructure initiatives, as will be elaborated below, including the belated and staggered entry of major players, the involvement of regional as well as global-level mechanisms and the ongoing adjustments of existing initiatives.

First, the demand for infrastructure investment is huge and the size of individual projects like building a new port or gas pipeline can reach billions of USD. While the 2009 ADB and ADBI study derives an infrastructure investment need of eight trillion USD until 2020, a 2017 update for 2030 arrives at an even more staggering number of 22.5 trillion USD (ADB 2017).

Related to size and *second*, individual projects and more encompassing roadmaps for development can be extremely complex. They will involve a variety of manufacturers and service provides that need to come together to develop a major railway line or construct an international airport. Supporting efforts will also have to be considered, for instance appropriate finance or making available necessary real estate. Moreover, such huge infrastructure projects frequently involve an international component, involving various jurisdictions. The inter- or transnational involvement may either come

about through the fact that the project itself crosses national boundaries, like an international railway line, that finance is well beyond national means and thus involves outside funds, or that contractors have a non-domestic background, like multinational construction or engineering companies. Understanding infrastructure as a "market" is therefore quite ambitious, as the confusing complexity frustrates easy generalizations.

Attempts to organize the market somewhat more to reduce transaction costs and make it more efficient are therefore still ongoing. The driving force behind this is the need to find adequate finance. While a glut of global savings is searching for investment opportunities, the complexity of infrastructure does not lend itself easily to absorb available funding (Weber et al. 2016). As a solution, establishing infrastructure as an additional asset class has been proposed. An asset class can be understood as a grouping of investments with similar characteristics that fall under the same rules and laws. Standardizing infrastructure investments in such a way would allow investors to move in and out of infrastructure investments more easily, possibly repackage them and thus make them attractive for pension funds or other institutional investors, including sovereign wealth funds. The G20 endorsed a Roadmap to Infrastructure as an Asset Class in 2018, building on earlier G20 initiatives in 2012, 2015 and 2016 to support investment finance, and showing that establishing an appropriate institutional setting for the infrastructure market is still an ongoing challenge (G20 2018). The Roadmap envisions an improved project development, for instance in terms of contractual and financing standardization, and an improved investment environment, including regulatory frameworks and so-called "quality infrastructure", more on which below. Critical voices reason that the ambition to involve more private investors underestimates the problems and risks involved with preparing and executing the complex projects. Based on data of the early 2010s, private investments only made up some 15 to 20% of all infrastructure projects according to ADB, and they rather focused on projects where there is a relatively easy recuperation of income flows, like in telecommunication and energy; other areas like transport and water & sanitation only realize a very small contribution from private sources (ADB 2017; Griffiths and Romero 2018). Moreover, one may be concerned that if risks actually materialize, it is frequently the public purse that will bear the burden (Griffiths and Romero 2018).

Third, while progress is being made and the infrastructure market gets more established, the complexity of the field is actually increasing. Various forces work in this direction (KPMG 2019). For instance, many infrastructure projects are related to environmental and other sustainability issues, and with the increased role of the Sustainable Development Goals (SDGs), of global climate effects and measures to fulfil the Paris Agreement commitments, yet another layer of complexity is added on top. Other complications are added by the rise of megaprojects, the challenges of data driven and digitalized elements of infrastructure projects as well as the need and options for raising the efficiency potential of projects.

A lot of empirical work has been done to identify the impact of infrastructure investment, with the literature on direct foreign investment an important groundwork. With respect to the effects on host countries of such investment, a positive correlation between infrastructure and GDP growth cannot be denied, but direction of causation is unclear (ADB 2017: 37). According to historical country case studies, infrastructure development played a significant role in the fast economic development of East Asia, including China, Japan and South Korea, while cross-country studies do not always

lead to clearly positive results, possibly due to complex spatial circumstances (Oosterhaven and Knaap 2003). Obviously, the idiosyncrasies of the market phenomena discussed here will make it difficult to arrive at general conclusions. One way to is to look more closely at those economies from which the infrastructure investment derives. China's outgoing direct foreign investment has been found been found not to be a substitute for trade between China and host the host country, as might be expected (Abeliansky and Martinez-Zarzoso 2019). This seems in line with China's intentions to support its exports through its infrastructure investment, as discussed elsewhere. From a Japanese perspective, there has been evidence of a vanguard effect of foreign aid to FDI from the same country in addition to the usual infrastructure effect (Kimura and Todo 2010; Sawada 2014), support in Japanese interest in schemes with a strong Japanese participation.

Fourth, all of this implies that in infrastructure markets public and private actors are usually intertwined in a complex web of relationships. Developing the framework for such markets further, for instance in terms of new legal and statutory conditions, is necessarily a task for the public actors involved. As the independent agency of multilateral bodies is quite limited, it will usually be up to nation states to take a lead role in such developments.

Fifth, the necessary involvement of public actors has another, even more compelling reason. Infrastructure has substantial public good properties, and this will lead to serious underinvestment by private actors. The traditional definition of public goods focuses on non-excludability and non-rivalry. Obviously, different types of infrastructure are not perfect public goods, as, for instance, outsiders and non-payers can easily be excluded from using railway lines. At the same time, up to capacity limits there is a considerable degree of non-rivalry when using railway lines, so it is difficult to charge adequate prices and to find an investor. Moreover, the recent literature has stressed other factors that can constitute the same consequences as traditional public goods; such factors include a universal reach, aspects of a normative commons, wide-ranging externalities and meritoric properties (Kaul 2013; Sandler 2013). Such factors are not exclusive to, but particularly strong on an international level, either global or regional (see also Öztürk 2019). Environmental and socio-economic externalities are particularly relevant for infrastructure, the *sixth* factor mentioned above.

While the case can be made that the public sector has a responsibility to provide such public goods, on an international level there is no clear agency for such an approach, whereas on the national level it is one of the major rationales of the nation states to take care of this task. Internationally, multilateral mechanisms are not strong enough to initiate such a course of action, other issues notwithstanding, while for any nation state, there is a similar problem as for private actors, namely that they cannot recuperate all the advantages of creating international public goods. They will therefore underinvest in providing goods like (international) infrastructure, and the potential merits will remain un- or at least underexploited.

This calculation only changes in case of additional aspects for the nation state, either (lower) costs or (extra) benefits. Kindleberger (1973) has contributed the basic argument that for a "benevolent hegemon", there are additional benefits for providing (international) public goods like prestige, agenda-setting power and influence. Infrastructure schemes are particularly prone to such effects, as the construction and operation of the" basic systems and services … that a country or organization uses in

order to work effectively", as defined above, has a significant impact on prestige and influence. For infrastructure, the political externalities are substantial, factor *seven* of the above list.

Given these characteristics of the infrastructure market, one can now sufficiently explain major developments since the 2000s, referring in particular to Asia. Of course, only the major lines can be drawn out here, and one cannot account for the full richness of historical detail.

As for the first phase in the new millennium up to about 2008/09, it is well known that East Asia witnessed extremely strong economic growth, facilitated by economic globalization and an intense integration of the region into the global economy. This development was driven by market integration, while institutional integration remained weak (e.g., Munakata 2006). A gap of infrastructure investment with its public good properties in the wider region is a consequence of this set-up. While there had been some attempts by national actors, like Japan, to support regional infrastructure campaigns in order to support her status as a regional leader, they remained rather unsteady and weak, given Japan's domestic political difficulties and fiscal problems (Pascha 2020).

As for the second phase, the years before and around 2010, the demand for more infrastructure investment in wider Asia became more pressing. Private infrastructure finance had declined considerably through and after the Global Financial Crisis (Bhattacharya and Romani 2013). Moreover, even without the crisis it had already become apparent that the further growth of the Asian region depended on a stronger institutional integration and foundation; the intraregional percentage of trade of the ADB region, including Central Asia and the Pacific, had already started to peter out during the early 2000s (ADB 2014: 5). Finally, with the financial crisis and the difficulties to bring the WTO's Doha Round to a successful conclusion, arguments were gaining ground that globalization may be reaching its peak and that the merits of further liberalization could be overrated (e.g., Rodrik 2011). New markets were therefore particularly welcome, and infrastructure, making up more than 10% of global GDP, looked like a suitable candidate, with a study like the already quoted ADB and ADBI 2009 perfectly fitting this intellectual climate.

As for the third phase, what was still needed was a nation state with a positive benefit-cost calculus for providing a substantial infrastructure scheme. This condition materialized in China in the following years, leading to the announcement of BRI in 2013. As for costs, China had accumulated ample foreign exchange reserves, so the opportunity cost of using scarce (financial) resources was rather low. Moreover, to the extent that China produced the desired infrastructure goods and services herself (factor *eight* listed above), the country, as a low cost producer, could expect welcome business. On the benefit side, the PRC developed claims to regional leadership and to influence the global agenda, so the political merits of providing an international public good in high demand were particularly high. Finally, an infrastructure initiative could also have a welcome domestic economic effect, as it supported the backward regions in the West of the country through developing linkages across Eurasia, helping the export industries with their ample capacities to find new vents for exports. Actually, the BRI has one of its major roots in such domestic discussions during the years before 2013, and together with the changing international landscape that was shortly sketched before, there emerged a "window of opportunity" for the Chinese leadership.

Having the right set of incentives or cost-benefit constellations to initiate an infrastructure scheme is one problem, installing an effective and efficient one quite another. For that, a suitable business proposition has to be offered to the infrastructure market. Here, the *ninth* characteristic of this peculiar market comes into play, namely that three basic categories of price, (uncertain) quality and contract conditions have to be considered when making offers. Price and quality are, of course, inversely related. The quality of infrastructure is difficult to ascertain, however, as it is complex and uncertain. Usually, it is only disclosed ex-post, so infrastructure can be considered an experience good, with several of the properties that are usually experienced in that good category. For instance, quality assurance mechanisms will play a significant role. One important mechanism is usually regulation, for instance in terms of standard setting and certification. Another aspect is reputation, so reputation capital can be an important issue. Moreover, with respect to another experience good category, initial public offerings, it has been intensively discussed in the finance literature that issuers (suppliers) may have an incentive to underprice their initial offer to avoid failure or that they may want to create a segmented market (basic source: Welch 1992). Apart from price and quality, contract conditions are an important third category of choice, due to the complexity of infrastructure and also due to its property as an experience good. For instance, during the lifecycle of infrastructure there are at least two important phases: construction on the one hand, and operation of the realized infrastructure project on the other. If a contract about construction does not involve an incentive for good work, the operation phase may be impaired. Because of this connection, actual contracts often try to connect both phases in certain ways, which is difficult to achieve effectively.

Tenth, all this leads to significant governance problems. In particular, for solving the infrastructure lifecycle issue outlined above, a skillful combination of public and private actors is often proposed. While the lifecycle connectivity could easily be internalized by a single public actor, at least when the project is purely domestic, this is often not a very efficient solution, due to bureaucratic failure, and it may also be difficult because of financial limitations. This leads to more complex contractual relationships, for instance in terms of public-private partnerships (PPPs). There is no simple solution to construct an "optimal" PPP contract, however, as the disappointment with quite a few PPP projects since the 1990s, when this term became popular, has shown (Wigger 2017).

Eleventh, complexity and uncertainty do not only create economic efficiency issues in a narrow sense, but also create the possibility of (illicit) rent-seeking, corruption and following and hidden agenda to involved actors. This makes quality assurance, contractual design and execution an even more difficult endeavor, both on the supply and the demand side.

Twelfth, a final characteristic of the infrastructure market is that many potential projects can be considered a natural monopoly. From this perspective, the role of competition in finding "better" solutions is often limited. Usually, there can only be one viable railway from A to B, and building it through C and not through D will mean that D will probably be disadvantaged for a very long time. Learning plays a role in such circumstances as well, for instance through taking clues from the A to B project for a plan to connect E and F. As there are many potential infrastructure projects beyond railway lines (though arguably only one rail project connecting A to B), and thus scope

for several infrastructure initiatives, there is not a supply–side monopoly, but rather an oligopolistic supply-side situation. Typical phenomena of oligopolistic markets can therefore be expected in infrastructure markets as well, with a lot of interdependence among the few suppliers, issues of leadership and followership, anticipation and reaction, commitments and threats.

In the following, these characteristics of the infrastructure market environment will be traced in outlining major phases of infrastructure initiatives in Asia and beyond. Doing so we will focus on three major steps. First, we will turn to the foundation of BRI, second, look at the Japanese reaction, and, third, discuss how the EU has entered this process.

4 Major phases of infrastructure initiatives

4.1 China's BRI

The basics of China's BRI, announced in 2013, are well known (for a recent overview: Fang and Nolan 2019). It will suffice to mention a few key characteristics. The core idea is developing a so-called "belt" across Eurasia with three routes and a maritime "road" with two routes. Originally, 58 countries were identified for primarily bilateral cooperation with China. Memoranda of Understanding (MoU), phrased by China in a standard format, were the instrument of choice to initiate concrete cooperation, then led to concrete contracts. While there was an initial focus on infrastructure, the initiative referred to five links, apart from infrastructure also policies, trade, finance, and people. Cooperation was to be based on five principles, in line with the UN Charta: "mutual respect for each other's sovereignty and territorial integrity", non-aggression, non-interference, equality, mutual benefit and peaceful coexistence, according to the principal 2015 document outlining BRI (National Development and Reform Commission 2015). Several finance mechanisms were put in place, both domestic and multilateral schemes. They include the Silk Road Fund, with 40 billion USD from foreign exchange resources, the Chinese sovereign wealth funds and the newly founded multilateral Asian Infrastructure and Investment Bank (AIIB), a Chinese initiative with a capital stock of 100 billion USD for the region.

The early experiences with BRI, now with a track record of half a decade, are somewhat mixed. Compared with the expected size of about 1 to 2 trillion USD, while some estimates were as high as 8 trillion USD, actual disbursement is still much lower. At the same time, problems have surfaced for partner countries, among them fears of a debt overburden for borrowing countries. The most famous case is the forced handover of Hambantota Port in Sri Lanka to China as a 99-year-leaselease, as the Sri Lankan government could not honor its debt obligations. This has led India and Japan in the meantime to find favor with the Sri Lankan government again (Herskovitz and Marlow 2019).

To some extent, the emerging problems seem related to an underpricing of the infrastructure initiative by the early mover China. Underpricing, combined with relatively low product and contract quality keeps potential competitors at bay, particularly in cases of a natural monopoly, where a second mover would find it difficult to enter at all. Moreover, underpricing is in line with relatively ample financial reserves, which

lowers the need for efficiency, and it is in line with the relatively early phase of China in its learning curve as an international supplier of infrastructure.

It is plausible that China already in this early phase was aware of a need to further adjust its strategy, either because of new market entrants, which would lead to action-reaction cycles in an oligopolistic environment, or due to learning effects. As a consequence it developed the initiative in a flexible way (Öztürk 2019). For instance, there is no clear and uniform organizational structure behind the execution of BRI, so changes can be implemented rather easily. Finance is a case in point. China has various financial instruments at her disposal to make use of in actual projects. AIIB was announced in 2013 and started in December 2015. At first, many observers feared that AIIB would undercut the standards of the established multilateral development banks. However, so far AIIB acted much more prudently than expected, and this was clearly in China's interest of not endangering its reputation as a trustworthy multilateral partner. On the flipside, AIIB lending has progressed much slower than expected: while it had a goal of disbursing around 10 to 15 Billion USD per year, since 2016 until September 2018 only some 6.4 billion USD was realized in total.

Flexibility served a second interest, namely that it helped to negotiate contracts favorable to China as the stronger partner with weaker borrowers. With respect to the MoUs, for instance, their non-committal wording can serve the purpose of underlining demands from China if it serves its purpose, while downplaying the status of the bilateral relationship in cases that are potentially disadvantageous for China (Okano-Heijmans and Kamo 2019).

One major problem for China proved to be the variety of objectives that BRI was meant to tackle, as discussed above: domestic regional motives, financial motives (related to forex reserves), business motives (related to capacity utilization), geo-strategic motives, and international reputation effects. It turned out that not all motives were easily compatible with one another.

4.2 Japan's reaction

In 2015, two years after the launch of BRI, Japan started the so-called "Partnership for Quality Infrastructure" (PQI). Its original pillars were an expansion and acceleration of infrastructure-related assistance through the established Japan International Cooperation Agency (JICA), collaboration with ADB as the established multilateral development bank for the wider region, measures to increase the supply of funding, and promoting relevant international standards (MOFA 2015). The target of providing 110 billion USD was raised to 200 billion USD in 2016, for a period of five years. Apart, the regional scope was extended from Asia "to the whole world" (MOFA 2016), explicitly mentioning Russia and Africa. Moreover, in the context of this expansion, the range of projects was enlarged beyond infrastructure in a narrow sense to cover natural resources, hospitals, etc. This also meant that more institutional mechanisms were being involved.

Notwithstanding the fact that there had already been earlier Japanese initiatives in this field, it is obvious that PQI is a reaction to BRI. Even though the official narrative might deny this, not only the conspicuous timing of the 2015/16 PQI is revealing. After the first move of China (BRI), its regional rival, Japan, modelled core features of its own competing initiative as a finely honed response to central characteristics of BRI.

Against China's bilateral approach involving MoUs, which gave China a lot of problematic bargaining power, Japan stressed its intention to base her propositions on each country's development plan, thus making it attractive for potential partners including heavyweights like India. In terms of financial magnitude, due to its dire fiscal situation Japan could not make a convincing counter-proposal to the trillion dollar China promise. So Japan could not follow a low-price or even underpricing strategy like China, but had to choose a high-price/high-quality approach. Claiming "high quality" of infrastructure projects is, however, difficult, because of infrastructure being an experience good. Quality assurance therefore had to be ascertained in several ways. First, Japan could point to its successful economic development trajectory and its reputation as delivering "quality" industrial solutions, including economic efficiency in export-oriented manufacturing, experiences with technology transfer and effective mechanisms of human resource development. Arguably, while somewhat less convincingly, this reputation could also be extended, at least in comparison with China, to "prudence" and good governance in a wider sense, involving transparency, careful economic viability considerations and thorough appraisal of risks. Second, Japan could point out the strong role of its successful private sector companies in delivering such qualities, a big difference with China's approach, which basically focused on government funds delivered through state-owned enterprises or other mechanisms and firms closely related with the state, all of them with a doubtful reputation as providers of quality and prudence. Third, quality assurance could also be supported by involving established mechanisms with a well-developed track record, both on the domestic level (like JICA) and internationally (ADB). The Japanese government also started some new mechanisms, like the Japan Overseas Infrastructure Investment Corporation for Transport & Urban Development in 2014, meant to support and facilitate Japanese corporations in the global infrastructure market (Hatano n.d.). Nevertheless, the focus was on established organizations, thus setting oneself apart from nontransparent mechanisms like the various financing agencies in China or untested new agencies like AIIB.

Finally, Japan promoted the establishment of quality standards through the multilateral level, thus pushing for rules that it could arguably fulfil much easier than China. Japan used the 2016 G7 Ise-Shima Summit in her own country to pass the so-called "Principles for Promoting Quality Infrastructure Investment". Five principles addressed, still rather vaguely, effective governance in the interest of reliability and efficiency, labor-related aspects like job creation and capacity building, social and environmental impacts, alignment with national and regional development strategies, and finally resource, particularly finance mobilization. Later in 2016, a statement on quality infrastructure was also included in the Declaration of the 2016 G20 Summit in Hangzhou, chaired by China. Japan also took an active interest in engaging other organizations like the World Bank and OECD. As a culmination of these efforts, the 2019 G20 Summit in Osaka adopted a more elaborated list of "G20 Principles for Quality Infrastructure Investment" that is significantly more concrete than its predecessors (Table 1). The various principles are explained on six pages of text.

These principles are not obligatory. According to the preamble of the document they are meant to help close the financing gap of infrastructure investment and thus to support the private sector and multilateral development banks. From that perspective, reference to them will be hard to avoid in cases of co-finance on the international level. If market players expect the proclaimed principles, like the explicit references to

Table 1 G20 principles for quality infrastructure investment

Principle 1: Maximizing the Positive Impact of Infrastructure to achieve Sustainable Growth and Development
Principle 2: Raising Economic Efficiency in View of Life-Cycle Cost
Principle 3: Integrating Environmental Considerations in Infrastructure Investments
Principle 4: Building Resilience against Natural Disasters and Other Risks
Principle 5: Integrating Social Considerations in Infrastructure Investment
Principle 6: Strengthening Infrastructure Governance

Source: G20 2019

environmental and social sustainability, to become even more pervasive in the future, they will tend to consider them even now for costly infrastructure schemes with their long use periods.

This is a serious challenge to China's earlier low-price strategy. At the same time, it has to be noted that in the oligopolistic environment of infrastructure, moves and counter-moves are only to be expected. With respect to Japan, for some time during 2017/18 there were hints that Japan might be shifting towards a more positive attitude towards BRI, for instance considering to eventually join AIIB (Iida 2018). Possibly, although this is difficult to verify, this was driven by the early successes of BRI, in the meantime encompassing agreements with more than one hundred countries. However, such a rapprochement has not been fully realized so far, although China and Japan in 2018 have agreed in principle to cooperate on 52 infrastructure projects, in moves that have been called a "conditional engagement" (Ito 2019). In oligopolistic markets, such developments are not surprising, as the limited number of actors often decide to cooperate or even collude, as this may be superior for them (but not necessarily for the demand side) when facing the risks of ruinous competition or additional actors who could spoil their rents.

With respect to China, the flexibility of BRI made it easy to adjust to new circumstances. It is noteworthy that BRI had a rather positive image during its early years, but that this image worsened after first experiences with actual projects were made (Garcia-Herrero and Xu 2019), including debt-trap issues, quality concerns and cases of corruption. A notable development is the Second Belt and Road Forum of April 2019, in which China took up the challenge to redefine her approach. In his keynote speech, President Xi Jinping stressed three major points to develop BRI further (Xi 2019):

> He formulated a "principle of extensive consultation, joint contribution and shared benefits", which implies that BRI will become more multilateral, as the earlier bilateralism had been met with doubts due to the asymmetric relationships,
> He acknowledged "open, green and clean cooperation", thus taking up points like transparency and environmental sustainability that had become major concerns of the strive for quality infrastructure,
> And he alluded to a "high standard cooperation to improve people's lives and promote sustainable development", underlining similar points further, stressing poverty alleviation and socio-economic development.

These points also entered the Joint Communique, which speaks of aiming for "high-quality, reliable, resilient and sustainable infrastructure" (Leaders´ Roundtable 2019).

For the time being, the infrastructure market seems to be leaning toward a high-quality strategy. The downside is that this could also turn out to be a high-price strategy that is problematic for the developing world, as has already been observed (e.g. Osaki 2019). As the Principles for Quality Infrastructure Investment are still open to some interpretation and are not mandatory, the market can still develop in one direction or another, driven by the small number of major players.

4.3 The reaction of the EU

While focusing on China and Japan, other major players have been neglected so far. An important development concerns the concept of the "Free and Open Indo-Pacific" (FOIP), based on an agreement between Australia, India, Japan and the USA of 2017, initiated by the Trump-led administration in the US, while originally already put forward by Shinzo Abe from Japan as early as 2007. FOIP is meant to ascertain the sovereignty of Indo-Pacific states, safeguard open sea-lanes and lead to fruitful economic cooperation, including infrastructure projects. Security-related cooperation so far seems to be the core interest. Most observers agree that it has to be interpreted as a move against China's growing geo-strategic ambitions, although the government of Japan, for instance, would deny this (Rossiter 2018). Economic, including infrastructure cooperation so far plays only a minor role. As the four partners are quite different in terms of their structural characteristics and ambitions, economic cooperation so far has rather progressed on a bilateral basis. For instance, India and Japan already cooperate since 2016 and have decided about seven major infrastructure agreements in late 2018. They also cooperate on Africa. Japan and the US have launched a Japan-US Strategic Energy Partnership in late 2017 that reaches beyond the two countries, for instance supporting Indonesia to develop LNG infrastructure (Mehta 2019).

Here, we focus on the role of the EU instead. What strategic position can the EU take in the emerging international infrastructure market and that has been shaped, to a considerable extent, by the competition between China and Japan?

For several reasons, the EU is not in a very favorable position:

- Decision–making is difficult: There is no clear mandate for an EU infrastructure initiative, although its various policies on trade, transport, energy and external affairs, among others, would allow to combine them – however, with coordination between the policy spheres of different Directorates General and of the External Action Service to be accomplished first.
- (Major) member countries have their own political and economic interests.
- The EU is not an insider to major parts of the regions of Eurasia and elsewhere that have attracted most of the interest.

In earlier years, several policies can be mentioned that contributed facets of a European approach, but only on a small scale and inconsistently. The Trans-European Transport Network (TEN-T) can be named, the European Neighborhood Policy and the EU-level ODA. In 2016, the EU passed a Global Strategy, in which a "Connected Asia" is dealt with in a short passage (EU 2016: 37–38).

Only in September 2018 did the EU manage to proclaim a Joint Communication (between the Commission and the External Action Service) on "Connecting Europe and Asia: Building blocks for an EU Strategy" (EU-HR 2018). Due to the difficult background of reaching a strategy, it is rather an amalgamation of existing policies of the various parts of the EU and of drawing out interfaces than a coherent approach. For instance, TEN-T is to be connected with Asia, a sensible idea, which had already been followed though. There is no clear budget line for the new strategy, rather references on the intention to make extended funding available. Relevant allocations from the new budget phase 2021 to 2030 are summed up. The notable increase of resources for the External Action Service is mentioned, but it cannot fully be attributed to the connectivity strategy. China and Japan are noted as partners for bilateral cooperation in the document, but China in a somewhat more cautious way, noting issues of market access and of a level playing field.

As a vision for consolidating the various threads, the text points out a "European way" of "sustainable, comprehensive and rules-based connectivity" (EC-HR 2018: 2–3). In this context, it should also be remembered that the Global Strategy signals a strongly value-driven agenda: "Our interests and values go hand in hand. We have an interest in promoting our values in the world" (EU 2016: 13).

Summing up, the strategy is still quite vague and flexible, in line with what has been noted for other strategies in the infrastructure market as well. During 2019, however, it already became somewhat clearer what course the EU might choose in terms of alliances or stand-alone policies. The March 2019 EU-China Strategic Outlook diplomatically points out that China is both, in different policy fields, a partner, a competitor, and a systemic rival. For instance, there is a valuable role for partnerships with China when coordinating connectivity schemes across the Eurasian landmass. At the same time, problematic issues like the potentially divisive role of China in the 17 + 1 scheme (for a survey, Stanzel 2016) or in the West Balkans have to be noted. In more general terms, the EU intends to "more robustly" "preserve its interest in stability, sustainable development and good governance" (EC-HR 2019: 5).

In September 2019, the EU and Japan concluded a bilateral "Partnership on Sustainable Connectivity and Quality Infrastructure", which stresses three points, namely sustainability, the concept of "quality infrastructure", and the idea of the "level playing field", thus three issues on which the EU policy and the Japanese approach converge convincingly. The text also accentuates topics in the digital connectivity. Common values of the EU and Japan are noted, which lays a foundation for cooperation on the multilateral level to support the established rule of law. In terms of regions, "the Western Balkans, Eastern Europe, Central Asia, Indo-Pacific, as well as Africa" (EU and Japan 2019) are highlighted. Mentioning parts of Europe in this context is quite remarkable, with prime minister Abe explicitly referring to Japan's Western Balkans Cooperation Initiative (of 2018) in his accompanying speech, because the EU had been quite critical of China's approach towards several European countries in the 17 + 1 framework before. China is not explicitly touched upon, but when Commission President Juncker expressed the hope to avoid "mountains of debt" ("non pas des montagnes de dettes", Juncker 2019) and "dependence on a single country" ("non pas plus de dependence à l'égard d'un pays", ibid.) in his accompanying speech, it is quite obvious which country is being referred to.

The EU is following Japan's path of stressing the quality-aspect of infrastructure, which is in line with her competitive advantages. From that perspective, Japan is a natural partner, and both on a regional and on a multilateral level, common interests are obvious, and the institutional foundations have been laid to pursue them.

The oligopolistic market evolution has led to a number of alliances. As there are quite a number of natural monopolies in the international infrastructure market – like railway lines, subway systems in metropolitan areas, etc. –, if the number of the players increases, the risk will rise that a player cannot be the winner of an important, contested contract, so it is a less risky strategy to ally oneself with others, while also not excluding cooperation with the single early mover, China. It remains to be seen which of the alliances will prove stable. While Prime Minister Abe mentioned the concept of the Free and Open Pacific in his speech when signing the EU-Japan partnership, Mr. Juncker did not do so, and no reference is contained in the actual agreement. The difficult amalgamation of security and geo-strategic economic concerns underlying FOIP, which could lead to conflicts of interest among the heterogeneous Quad of FOIP countries, is facing some skepticism among EU policymakers.

5 Conclusions

This paper tried to understand the growing significance of infrastructure initiatives from China, Japan, the EU and elsewhere for Eurasia and beyond from a market creation perspective. Several interesting insights can be derived from such a viewpoint.

While there had obviously been an international market for major infrastructure markets even before the 2010s and there had also been a number of rather unsuccessful infrastructure initiatives, the emergence of major initiatives during the recent decade can be explained by changing demand and supply conditions. The Global Financial Crisis had led to a demand for additional sources of growth, and the flattening of trade growth in the wider Asian region had also contributed to this. While it is difficult to supply a public good like an international infrastructure scheme, there was a window of opportunity for China to present such an initiative to the world, the BRI, in 2013. Thus, for the first time, the conditions for an infrastructure market driven by a forceful national strategy had been established.

Twelve characteristics of this oligopolistic market have been identified, and it was shown how they have shaped the evolution since 2013, including the emergence of Japan's PQI in 2015/16, the endorsement of FOIP by the US and others in 2017, and the publication of the "Building blocks for a Europe-Asia connectivity strategy" of 2018.

All of these initiatives are quite flexible. It could be shown that this is meaningful, given the characteristics of the market, and that strategies have actually adjusted over time, for instance in terms of pursuing alliances and avoiding direct conflict among major players.

While China at first followed a low-price strategy, Japan's countermove of pushing a high-quality strategy and supporting it through multilateral standard-setting ("quality infrastructure" with a focus on sustainability, good governance and rule-setting) has driven China into the same direction. While oligopolies sometimes tend towards chaotic competition, in this case the contest among major players seems to have

safeguarded a healthy market development. At the same time, it remains to be seen whether rules and standards might lead to too much red tape and cost increase from a Global South welfare perspective, and whether the complex amalgamation of economic (or business) and politically charged geo-strategic motives will create further problems.

It would be tempting to analyze the oligopolistic market structure of multilateral infrastructure more formally, but this must remain a task for the future. The complex interplay of different partial markets of infrastructure, of regional and global arenas, of price, quality of product and of governance as separate action variables, and of the possibly conflicting goals from economics/business and politics will not make this an easy task.

One more desideratum that cannot be adequately covered here is to what extent multilateral infrastructure development depends on wider market constellations, particularly the availability of financial funds. One important driver of the wave of infrastructure initiatives in the 2010s is the availability of global savings and surplus funds, for instance through China's mounting external surpluses. This framework condition may change. For instance, China's surplus situation has significantly deteriorated in 2019, and this has already led to debates on whether China can pursue its expansionary strategy abroad as before (e.g., Setser 2019). The effect of changes on the global level can be quite asymmetrical. A period of global financial turmoil, for instance, does not only make it more difficult for players to finance international schemes, but Japan usually realizes a safe-haven effect of its currency, altering the relative opportunity costs of activities.

As for the role of the EU in the international infrastructure market, it could be explained why the EU has entered the group of major players only belatedly and why, due to its limited influence in various relevant regions, it is doing so cautiously, looking out for appropriate partnerships. Since 2018, there have been a number of meaningful steps, including the connectivity strategy of September 2018, the Strategic Outlook on EU-China relations of March 2019, the EU-Japan connectivity partnership of September 2019, and also a new EU strategy on Central Asia of June 2019 (EC-HR 2018; EC-HR 2019; EU and Japan 2019; Council of the EU 2019). The new strategy has sometimes been criticized as too vague, but the need for flexibility is quite in line with the general evolution of the international infrastructure market. It is encouraging to note that during a very difficult time for the EU, it has taken a number of important steps in the right direction.

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