17 Discussion: A View from Outside the Industry

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Because my expertise is not the telecommunications industry, I will approach the issues generically. From what I understand, the intention is to enhance competition and explicitly capture the value of any subsidies by allowing some parties to use part of the infrastructure facilities of others. If there is no explicit limitation on how long this phase will last, then there might be an incentive to delay if there are no strategic considerations. That's because if you can lease facilities in the short term versus sinking a large investment to create your own infrastructure (given the uncertainty - technological and otherwise - in the environment), it may create a bias to delay, to benefit from a "wait-and-see" approach.

If we want to encourage further investment, it should be made clear that this delay is only a temporary phase. The intention is that at the end (of this phase), we're going to move to a more competitive environment. We should thus make explicit the expiration of the option that is being provided. If the expiration of this option is limited, then other strategic considerations may arise that create incentives to invest earlier on. This is because competing firms could become worried about whether they are being positioned strategically by investing in infrastructure and obtaining benefits in order to keep up with the next generation, become a technological leader, derive benefits from spin-off applications, and so forth. Thus, there are important strategic dimensions that should be factored into this equation as we move into a more competitive environment.

In the meantime, there is an option value here, and it is only fair that it is explicitly priced in the market. One way to provide a market value to it, perhaps, would be to allow tradability in options to use these leasing rights for different time horizons (create flexibility as to whether somebody may want to use a one-year leasing option or a five-year option) and allow the marketplace to decide what the market value of these options should be, just like options traded in the environmental protection area. There are options to pollute, and there is a market for them that works quite well. In that case, the factors that determine option values, such as

uncertainty, maturity, and others parameters, would have to be reflected in the traded option price.

There is also the issue of whether real options value is driven by irreversibility and whether the investment is sunk or not. I do not know enough about the telecommunications industry to judge to what degree investment is sunk. It seems that parts of the infrastructure (e.g., loops) are more irreversible and sunk than other components (like PCs and electronics circuits, which may be more reversible and may be repositioned into other uses).

In a more general environment, it would seem that part of a generic investment in a general context is reversible. We can sell assets in second-hand markets. Companies that take over other firms in order to acquire the usage of certain facilities are paying a premium for the use of those assets (the premium is embedded in the market price). We can reposition assets; and, in general, there is some salvage value, some market value for used assets, facilities and equipment. The degree of economic depreciation becomes relevant; the expected value of the asset at the end is relevant. Also, the degree of uncertainty in that value is relevant in the real options framework. And the degree of correlation of the value of that asset in an alternative use versus its value in the current use also becomes relevant.

But we need to find some way to put a fair value on the options component here. There is a premium attached to the option value. If a firm or an industry has an option to reposition assets (or some form of an abandonment option) rather than finding some useful alternative use, then the presence of this option would reduce the premium that should be paid in the absence of this option. And the exact amount of the reduction in the premium is not clear. It is not a linear relationship; there is interaction. For example, consider two options. The first is an option to delay investment or an option to expand production – this is a call-type of option in the sense that you benefit on the upside if things go well. The second is an option to abandon a project, sell it for salvage or reposition its assets in some other use – that is a put-type option, a kind of insurance that benefits one on the downside. If one has both types of options, the value of the combination is not the sum of the parts. If you first expand, you can later abandon; but if you first abandon, you cannot later expand. The values are not additive, and so determining the right premium is not straightforward.

Investment in a general context is not necessarily irreversible. It is partly reversible and flexible. And, if by investing earlier you can create a set of other related options, or there are benefits that might be derived in terms of either coming up with spin-off applications or being in a better position to come up with improved gen-

erations of the product, or if one can influence competitors' behavior through preemption or otherwise, there may be strategic benefits deriving from investing earlier. And the more and faster we move to a competitive environment, the more clear (and perhaps dominant) these strategic benefits would become, offsetting the bias of delaying rather than investing earlier. So there are many other sources of competitive advantage that may lead to a positive-NPV project or an incentive to invest early. But to get there, we must clearly see the current phase as a temporary one and put incentives in place to move to a competitive environment (that may likely put more value on infrastructure investments) as quickly as possible.