To have and have not
– Railway market opening and the availability of rolling stock*

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Abstract

Regulatory reforms in several European countries have gradually opened up more and more parts of the railway system to competition, tearing down the previous national monopolies. In some cases, the provision of rolling stock has been seen as a key element to handle for a true market to develop. In this paper, the role of the availability of rolling stock for market opening is discussed in some detail. The primary focus is on vehicles for passenger rail services and recent developments in Sweden, where market opening has been taken further than in most other European countries. It is concluded that the Swedish market for railway vehicles has developed in a positive direction in recent years, but there are remaining obstacles to handle. Moreover, new difficulties have appeared on the horizon, such as the costly retrofitting of vehicles with ERTMS equipment.

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1. Introduction and outline of the paper

As described in several previous articles and papers (e.g. Alexandersson, 2009) the EU has taken a number of steps in the 1990s and 2000s, seeking to reshape the railway industry by means of market opening and other regulatory reforms. An overall objective has been to create a European market for railway services. Actual implementation of regulations and directives in the Member States has varied, both in terms of formal execution and practical consequences, as presented in overviews such as the reports on the Rail Liberalisation Index, most recently revised in 2011 (Kirchner, 2011). In Sweden and Great Britain, reforms have been taken further than in most other countries, implying both vertical and horizontal separation of assets, businesses and services, as well as the introduction of competition both for and in the market.

In this paper one particular aspect of market opening is discussed – the availability of rail vehicles, primarily for passenger rail services. The overall importance of this factor is briefly reviewed, followed by a closer look at the related development in Sweden. The Swedish market for railway vehicles, by means of ownership and control, possibilities and obstacles, is analysed in some detail. In a final section some overall conclusions are presented, together with some suggestions for future improvements.

2. The role of rolling stock for market opening

It is unquestionable that rolling stock makes up a major part of the capital costs to be handled by any railway undertaking's business. Typically, the figure has been calculated to 20-30 per cent of total costs. Moreover, by integrating the means of production with the services and value propositions offered to customers, in particular for passenger travel, the rolling stock contributes substantially to the identity of a train operating company in the minds of its users. Introduction of new or modernised rolling stock has typically been used to differentiate a service from other offerings. Rolling stock for railway services has also traditionally been manufactured to stay in production for a very long time, commonly up to 30 years, which makes investments and reinvestments in rolling stock a critical long-term decision for any railway undertaking.

Due to the lack of standardisation and the common use of national and even regional specifications, it takes time (typically 3-4 years) to go from a placed order of new railway vehicles to the delivery of fully functional and authorised vehicles ready to be put into operation. If there is a tendering procedure before the order is placed, one may have to add another year to this projection.

This is a situation that is rather different from, for example, the vehicles used for air travel. For aircrafts, there is an international market of fairly standardised vehicles. This also means that there is a limited risk for a carrier to be stuck with a fleet of unused aircrafts, for example if demand projections fail to materialise.

The availability of rolling stock can rightly be seen as a key component for a well-functioning railway market. On the other hand, as mentioned above, rolling stock may also serve as a very important differentiator between competing companies. This makes it less desirable to eliminate this factor entirely from the equation when railway undertakings are also supposed to adapt their offerings to the needs of the market and its different market segments.

3. EU approach to rolling stock

The political institutions of the EU have so far not taken any specific steps towards regulating the provision of rolling stock in the railway industry, at least not in terms of unbundling and the setting-up of rolling stock companies. However, important work has been initiated and carried out in order to harmonise technical standards and specifications, which ultimately would serve as a way to create a more uniform market for rail vehicles in the EU as well as govern the interoperability in cross-border traffic. Nevertheless, due to the long life-expectancy of railway vehicles already in use, it will take a very long time before the ambitious goals have been fulfilled. Moreover, country-specific solutions and exemptions from common specifications are still allowed, even in the case of new investments.

EU has also made some other efforts to improve the conditions for new railway undertakings and providers of rolling stock. In the 2010 proposal for a revision of the first railway package, an important element is the safeguarding of access to rail-related services – such as workshops for vehicle maintenance – in particular when some of these functions are controlled by the incumbent railway undertaking.

In some EU countries, such as Great Britain, Germany and Denmark, there are rolling stock companies that play at least some role for the provision of rolling stock to other railway undertakings than the incumbent. In this respect, Great Britain is a special case worth studying closer.

4. The situation in Great Britain

The process in 1994-1997 to completely privatise the British railway system included a very distinct way of handling assets like rolling stock, which so far has no direct comparison to the treatment of these assets in other European countries. The rolling stock of the former monopolist, British Rail, was divided in three parts and was then transferred to three rolling stock companies – ROSCOs – that were subsequently sold to the private sector. Each ROSCO came to hold between 3,000 and 4,200 vehicles. The idea was clearly to create a separate market for railway vehicles and also include an element of competition between different providers. However, this part of rail privatisation became one of the more debated, as some ROSCOs were quickly re-sold with much higher price-tags. For example, the shares of one of them, Eversholt, which were bought by a management-buy-out team for £518 million, were resold 1 year later at a price of £726 million. Transport economists such as John Preston have therefore argued that the government should have included a clawback provision clause when

the vehicles were divested, in order to maximise the return for taxpayers (Ehrling, Hultén and Alexandersson, 1997).

Another controversial issue was that Stagecoach, holder of a major Train Operating Company franchise in Great Britain, was allowed to acquire one of the ROSCOs – Porterbrook. One of the main objectives behind the British reforms was to break up all the vertical ties in the industry. The acquisition effectively meant a step back to vertical integration. Nevertheless, it was approved by the Monopolies and Mergers Commission, although it was stated that Stagecoach could not lease its rolling stock to itself at a lower price than to its competitors (Ehrling, Hultén and Alexandersson, 1997). In 2000, Abbey National Treasury Services acquired Porterbrook from Stagecoach and in 2008 it was sold again to a consortium of investors (Porterbrook, 2011).

The ROSCOs in Great Britain have subsequently made new investments in rolling stock and one of them, Angel Trains, has also become an international player, with a couple of hundred vehicles now being leased by railway undertaking in a total of 11 EU countries (such as Denmark and Germany) (Angel Trains, 2011). However, Angel Trains is still far from becoming a major player at the European level. In most other European countries, rolling stock (at least for passenger services) is still owned by the national railway carriers themselves (or being part of leasing agreements involving banks or other financial institutions).

In recent years there has been a growing concern that the Britsih market for railway vehicles is not working satisfactory. The ROSCOs have been accused of abusing their dominant position. The Department for Transport (DfT) has therefore become directly involved in the procurement of diesel-powered railcars through a state-owned company. Moreover, DfT has taken part in vehicle procurement projects in the Thameslink Programme and the Intercity Express Programme, in order to gain better control of the rolling stock market (Statens Järnvägar, 2010a).

5. Railway reform in Sweden – efforts and actions related to rolling stock[1]

In Sweden, the railway reform process was initiated already in the mid 1980s (and arguably even earlier). By means of a ground-breaking reform in 1988, the state's rail infrastructure was vertically separated from the monopolist Swedish State Railways (SJ), creating a new authority, Banverket, responsible for construction and maintenance of rail infrastructure and related assets.

The decision in 1988 also meant that the County Public Transport Authorities (CPTAs) from 1990 became responsible for passenger services on local and regional railway lines. In addition to some direct state grants meant as compensations for their increased costs, the rolling stock used by SJ on these lines was also transferred to the CPTAs at no cost. At that

[1] Unless stated otherwise, this section draws from Alexandersson et al (2000).

time, this rolling stock consisted of 60 diesel-powered railcars and 16 electric railcars. From then on, the CPTAs were to become important owners of rolling stock separated from SJ.

The reforms of the late 1980s and early 1990s meant that tendering of railway services became possible, also leading to new entry. When the right-centre-liberal government in 1994 planned for a complete deregulation from 1995, it was supposed that rolling stock would become available for new operators by means of acquisitions or leasing from SJ's supply of surplus vehicles at "market prices". When the decision on a complete deregulation was abolished by the new Social Democrat government later in 1994, and instead limited to a deregulation of the rail freight market in 1996, rolling stock was not considered a "common function" of the railway system. Therefore, operators wishing to start services were supposed to use rolling stock owned by themselves (or leased from other parties). The government was not willing to take any action that would make SJ's vehicles available to the market in general. Instead, SJ was free to handle its fleet according to it own business decisions. In the early years following the opening of the rail freight market, TGOJ, a fairly independent subsidiary to SJ's freight division, became an important provider of rolling stock (locomotives) to some of the new entrants, although access to modern electric locomotives remained very limited (Alexandersson, Hultén and Nordenlöw, 1999).

In the tenders for interregional services (starting in 1993), access to rolling stock was typically a major obstacle for any bidder wishing to compete with SJ. SJ was supposed to make any spare vehicles available to other operators, but potential new entrants typically complained that the price asked was much higher than reasonable. It was not until 1998, when the procuring authority managed to get an appropriate price-list from SJ. This played an important role for the breakthrough of new entrants in tenders for this part of the market in 1998-1999.

In the new transport policy bill of 1998, the principle of keeping rolling stock separate from the common functions was stated again, but a new government investigation into the rolling stock market in 1999 resulted in a fairly different suggestion. In the report, it was argued that a rolling stock company should be formed, being jointly owned by the CPTAs and the state (SOU 1999:87). The role of this rolling stock company was to coordinate procurement of vehicles and then let operators being contracted for the tendered services hire them. Already in 1998, the vehicle manufacturer Adtranz (later acquired by Bombardier) had, by its own initiative, created a new rolling stock company in an effort to facilitate the CPTAs' purchases of new vehicles. In 1999 several CPTAs stepped in as new owners of the company, now called Transitio. Towards the end of that year, the company had placed several orders for vehicles to be used in the CPTAs' traffic from the year 2001. In the year 2000, when the government suggested a corporatisation of SJ, these recent events were seen as having dramatically altered the situation regarding rolling stock. Therefore, it was not seen as necessary for the state to step in. Nevertheless, the vertical and horizontal break-up and corporatisation of SJ's divisions from 2001 meant that the only remaining part of the old SJ, the business administration Statens Järnvägar (ASJ) took over all the leasing agreements related to rolling stock from SJ. In 2003 it also effectively became the rolling stock company

for the vehicles that were used in the inter-regional services now procured by the authority Rikstrafiken.

In a new government investigation (SOU 2003:104), the market for rolling stock was discussed rather thoroughly. It was clearly stated that an open and well-functioning market for railway vehicles was an important pre-condition for the development of passenger services. The lock-in of vehicles used by SJ in long-term leasing agreements was considered to be an obstacle for new entrants, together with the strong position of the CPTAs and their rolling stock company Transitio. The investigation recommended further steps towards market opening in general. The main idea was that competition would create a natural balance in terms of distribution of vehicles as well as the right incentives to invest in new vehicles when old ones were being phased out. However, most of the recommendations did not result in any political action, as the Social Democrat government never went ahead with a market-opening bill.

When the new right-centre-liberal government took office in 2006, they soon started to think about how to proceed with railway market opening. A new government investigation was initiated, which resulted in a report in 2008 called "Competition on the tracks" (SOU 2008:92). Several of the ideas from the previous report (SOU 2003:104) were now recycled, with the objective to achieve a general market opening of long-distance passenger services. Regarding rolling stock, it was again stated that access to railway vehicles (including maintenance) was a pre-condition for a well-functioning deregulated market. However, it was also stated that the provision of rolling stock should – as much as possible – be based upon regular commercial decisions made by market actors without state intervention. Therefore, it was suggested that SJ should be allowed to keep its fleet of vehicles, but any surplus would have to be auctioned out before scrapping. The same would hold for ASJ. No state-owned rolling stock company was to be established. Moreover, it was suggested that the state grant for rolling stock investments, which for a couple of years had been given to the CPTAs, should be transformed into an infrastructure investment grant.

The 2009 government bill on market opening (Proposition 2008/09:176) closely followed the recommendations of the preceding report. No additional state intervention was believed to be necessary, although it was suggested that SJ should be obliged to openly declare its need for vehicles in the forthcoming years. Any vehicle not being used by SJ should be transferred to ASJ. Likewise, if market opening would lead to the appearance of commercial train services that could make some procured services redundant, it was assumed that vehicles belonging to ASJ or the CPTAs could be made available for commercial (non-procured) operations.

In 2011, the final stages of the latest efforts to deregulate the Swedish railway market have been implemented. The first new time-table taking all these changes into account is about to be launched in December.

6. The current situation on the market and the development since 2008

Together with a colleague at Stockholm School of Economics, Staffan Hultén, I made a study in 2007-2008 that included an overview of the market for railway vehicles in Sweden. The study was published in an appendix to the aforementioned government report "Competition on the tracks". Among the sources was a study made by ASJ (Statens Järnvägar, 2006) and a number of interviews with actors in the industry. In the scope of the project producing the article at hand, this work has now been updated. I will therefore make some comparisons between the related empirical findings, but also highlight some other issues to be factored in when judging the state of the current market.

At first glance, the current market for railway vehicles is very similar to what it was like in 2008. SJ and Green Cargo control the majority of the rolling stock (for passenger services and freight services, respectively). ASJ is still the provider of vehicles for the inter-regional traffic procured by Rikstrafiken (recently incorporated with Trafikverket) and administrates the leasing contracts for the vehicles used by SJ and Green Cargo. The CPTAs, some on their own and some through the jointly owned company Transitio, control the rolling stock used by different contracted railway undertakings for the provision of local and regional train services.

Looking closer at the development since 2008, we find some important changes that have taken place. Let us first consider the overall situation regarding the stock of fairly modern electric or diesel-powered railcars. These vehicles have typically been viewed as the ones to match for any serious new entrant to the passenger rail market. Table 1 provides an overview of these vehicles and their current providers. For some vehicle types that are currently on order, there is also a projection of the number of vehicles available in the future.

As a rough estimate, 410 railcars are currently in use for regional or long-distance services in Sweden. This is substantially more than the figure calculated in 2008 – 320 railcars. However, this earlier figure was missing some older vehicles which are now included, but also over-estimated the delivery of some new vehicles. All in all, the net increase is about 40 railcars. The major reason for this is the steady in-flow of new vehicles to the CPTAs (see further below), but also some additions to SJ's fleet. Within only a few years, it can be estimated that the total number of railcars may amount to as many as 490 vehicles, unless some of the older ones are phased out in the meantime.

Table 1. Railcars in Sweden 2011 (estimates)[2]

Vehicle type/ littera	Number of vehicles	Year of delivery	Rolling stock company/ owner
X10	52	1983-93	Transitio & CPTAs
X11	48	1993-99	Transitio & CPTAs
X12	16	1991-94	SJ Ltd & CPTAs
X14	20	1994-95	SJ Ltd & CPTAs
X2 (X2000)	43	1989-98	SJ Ltd & ASJ
X32 (rebuilt to X31 in 2007)	7	2002	DSB, SJ Ltd & Öresundståg
X31	10-(21)	2008-(2012)	Transitio & DSB First
Y31-Y32 (Itino)	30	2003-2010	Transitio & CPTAs
X40	43	2005-2008	SJ Ltd
X50-X55 (Regina)	73-(125)	2000-(2013)	Transitio, Västtrafik & SJ Ltd
X60	71-(83)	2005-(2013)	Stockholm Public Transport
X61	18-(79)	2010-(2013)	CPTAs & Transitio

Vehicles of ASJ, SJ and Green Cargo

In the 1990s SJ reached a number of sale/lease-back agreements for its rolling stock as a way to set its capital free. In the early 2000s, when ASJ took over the administration of the leasing agreements, it was projected that it would take a very long time before these had come to an end. In particular, important rolling stock such as the X2 railcars and the Rc electric locomotives used mainly for freight services were locked-in long-term (2018-2021) by means of these agreements. Already in 2007-2008, it was clear that many X2 sets were about to be released from the leasing-contracts in the next couple of years, together with many electric locomotives. It was therefore argued that this major obstacle to a market for railway vehicles would not be as severe in the not-so-distant future. In 2011, the situation has taken an even more dramatic turn. In Table 2, the vehicles affected by lease-back agreements (or similar) are listed. In total, more than 7,200 vehicles were supposedly locked-in initially, and according to the projections, less than half of them (about 3,000) would be released in the period 2001-2010. As it turned out, due to a number of restructured agreements and premature ending of contracts, in reality more than 4,300 had been released by the end of 2010. Moreover, only a few months later, in April 2011, almost all vehicles (7,200 or 99.5 per cent) had been released from the agreements, some of which were originally not set to expire until 2016 (Statens Järnvägar, 2011a, 2011b, and Lennart Dahlborg, interview).

[2] The table has been compiled with the help of data from Transitio, ASJ, SJ and various reports from the CPTAs.

Table 2. ASJ administrated vehicles affected by lease-back agreements

Type of railway vehicle	Number of vehicles	"Released" from leasing agreements			
		Planned 2001-2010	Actual 2001-2010	Actual 2011	Actual 2011 (%)
Diesel locomotives	89	0	89	89	100 %
Electric locomotives	351	220	351	351	100 %
Freight wagons	6,103	2,708	3,364	6,103	100 %
Railcars	23	9	23	23	100 %
Passenger coaches	426	2	280	426	100 %
X2 locomotives	43	23	36	37	86 %
X2 railcars	224	109	197	197	88 %
Total	**7,259**	**3,071**	**4,340**	**7,226**	**99.5 %**

This new situation means that SJ and Green Cargo have gained full control over their fleets of vehicles. Potentially this has some important implications for the development of the rolling stock market. In 2008 SJ made the decision to start investing in new vehicles intended at replacing the ageing fleet of X2000 trains. Delivery of these new trains started in 2011 (but will not be put in scheduled operations before 2012). This could mean that some of the X2000 trains, now released from the leasing agreements, will become redundant and therefore available to rent by other railway undertakings as suggested by the government in its market-opening bill. However, in a short statement to the Department of Enterprise, Energy and Communications, SJ has declared that all X2000 vehicles will be needed in SJ's future operations (Lars Hellsvik, interview). Starting in 2012, SJ is also planning to upgrade the existing X2000 trains to make it possible to run them another 20 years. Consequently, it is not likely that other companies will be allowed to rent these vehicles in the foreseeable future.

What about the locomotives of Green Cargo? Historically, Green Cargo (and its subsidiary TGOJ – now incorporated with Green Cargo) has been more willing than SJ to let other companies use their spare vehicles. However, it remains to be seen if this will be the case now and what the effects might be.

ASJ controls about 90 vehicles (mostly passenger coaches) which today are used by the contractors for the traffic procured by Rikstrafiken/Trafikverket. A majority of these are used for the night train services between Stockholm and the very north of Sweden. In addition to this, there are a very limited number of vehicles currently not used by any contracted operator, which ASJ may therefore rent to other companies.

In 2010 ASJ made an investigation of its fleet of vehicles used for the night train services, in order to be prepared for a possible reduction in the tendering of this traffic from 2013 (Statens Järnvägar, 2010a). It was concluded that a reduction would lead to a surplus of vehicles that could then become available for other railway undertakings. However, in June 2011, a new

agreement was reached with Trafikverket, meaning essentially no changes in the number of vehicles (Statens Järnvägar, 2011c).

Vehicles of the CPTAs

As has been described above, an important effect of the decentralised responsibility for local and regional train services was that the CPTAs became owners of rolling stock. As these regional services expanded and sometimes led to the formation of inter-regional networks, the CPTAs became even more involved as providers of rolling stock, leading to new investments and eventually the formation of their jointly owned rolling stock company – Transitio.

During the 2000s, state grants aimed at rolling stock investments played an important role in the business decisions of the CPTAs. In total, SEK 4.6 billion have been granted (of which so far 2.1 billion have been paid). Although this system of state grants has now been dismantled, the already decided level of grants will be respected (Lars Hellsvik, interview). The CPTAs have been the major buyers of new vehicles in the past decade and now control a large fleet of modern vehicles.

It has been argued that spare vehicles of the CPTA-controlled fleet could be a potential source of rolling stock for new entrants. In particular, one could imagine that vehicles mainly used on weekdays for regional public transport, could be used for commercial services over weekends or during other periods of time when they are not needed for the traffic of the CPTAs. However, there are some legal obstacles to such an arrangement. The CPTAs, being entities of the public sector, are bound by a legal framework forbidding them to engage in activities outside if the interests of their local citizens. Moreover, they are restricted when it comes to running profitable business operations and would only be allowed to let other companies rent their vehicles if that could be arranged on non-discriminatory terms. Possible solutions have been discussed internally at the Ministry of Enterprise, Energy and Communications, but have yet to be formalised into any political proposals (Lars Hellsvik, interview). Moreover, there could be other legal problems as well. As pointed out by Björn Asplund, Transitio (interview), the railway undertaking's responsibility for traffic safety will make it time-consuming to let someone else take over the vehicles. This may kill the possibility for weekend services run by other railway undertakings.

Some other operators

Veolia has so far been the primary example of a new entrant willing to test the limits of the regulatory framework. They started weekend operations between Stockholm and Malmoe already in 2009, which were expanded to daily services in 2010. To this end, they have gained access to some rather old passenger coaches, while the company Hector Rail has been contracted as a provider of locomotive power. Hector Rail has gradually built its own fleet of rather modern locomotives (several being imported from abroad) which are used mainly for freight services but also, in the case of Veolia's trains, for passenger services (Ole Kjörrefjord, interview).

A very limited number of new passenger train operators applied for train paths in April 2011 (for the new time-table about to start in December). One of them was the airline Sundsvallsflyg, with the intention to start a parallel train services between Stockholm and Sundsvall. However, as their proposal assumed the use of X2 vehicles the plan failed to materialise when they could not get access to such vehicles. The only actual new entrant (starting already in November on rest-capacity) is Skandinaviska Jernbanor, running between Uppsala/Stockholm and Gothenburg with a concept directed at customers willing to focus on having a pleasant rather than a very fast journey. According to their CEO Johan Masgård (interview), it is a difficult task to get hold of passenger coaches that are suitable for long-distance trains.

So far, we have not seen any new entrant having the capital and willingness to invest heavily in new rolling stock in an effort to become a major new player in the Swedish market. Even the big international players already present, such as Arriva/DB, DSB and Keolis, seem to focus on the contracted part of the market, at least for the time being.

Vehicles from abroad

As mentioned above, Hector Rail has managed to bring in some fairly new locomotives from other countries (such as Austria) to the Swedish market. However, this has also meant that their fleet is anything but homogenous.

In 2010, ASJ did a study on the availability of rolling stock in other countries suitable for the Swedish market (Statens Järnvägar, 2010b). It was concluded that Norway was the only country from where it would be easy (no need for adaptation) to bring in vehicles, but no spare vehicles were available there. Other countries considered due to technical similarities were Switzerland, Germany and Austria, where used spare vehicles could be brought to Sweden after some adaptations. However, it was also concluded that there was a general unwillingness to sell spare vehicles if they were to be used by potentially competing firms.

There is no strong consensus regarding the process of getting an imported vehicle approved (by the Swedish Transport Agency) for operations in Sweden. Some railway undertakings argue that it is a very lengthy and costly process while others say that it can take a couple of months, which they view as fairly good compared to several other European countries.

An important factor to consider when importing a vehicle is the long-term availability of spare parts, components and maintenance resources. This makes it advantageous to choose a vehicle of a type that is already present on the Swedish market.

7. Other obstacles

One important aspect of the creation of a truly European railway market has been the efforts to achieve interoperability of railway vehicles in order to promote cross-border services and get rid of the need to switch locomotives. The establishment of a new EU-wide signaling

system, European Rail Traffic Management System (ERTMS), with the related adequate equipment in infrastructure and vehicles is one very important part of this.

While there are some savings to make for an infrastructure manager upgrading its network to ERTMS, it seems to be a very costly upgrade for the holders of existing rolling stock. Retrofitting a locomotive with equipment for ERTMS may in some cases cost several million SEK. In addition to this, there are huge costs of getting each type of locomotive approved by the authorities. So far, this has made all minor Swedish operators very reluctant to performing the upgrade. Unless the financial difficulties are resolved, only the major players (and preferably those where state grants pay for the investments) will have the sufficient funds to carry out the retrofitting and adjust to the new situation. Therefore, the efforts to achieve interoperability may actually create a new barrier to entry, undermining the other legislative efforts made by EU institutions with the objective to create a single European railway market with deregulated market-entry.

In 2012, the CPTAs will be dissolved to be replaced by new regional authorities with less direct involvement in the public transport operations. This marks an uncertainty in the market and what will happen with the rolling stock currently controlled by the CPTAs and Transitio.

8. Concluding discussion

Time and time again, in the discussions preceding many Swedish reforms in the railway sector, the role of a functioning market for rolling stock has been highlighted as an important prerequisite for the development of a truly competitive railway market. Nevertheless, no government has really been willing to intervene by means of establishing such a market. Today, we have a situation where several different actors (ASJ, Transitio, CPTAs and SJ) own or control trains used for passenger services. Consequently, there are several actors that – in principal – could function as rolling stock companies for new entrants to the market. However, none of these actors are truly organised in a way that they could meet the demand for vehicles on a deregulated market.[3] They serve different parts of the market with different types of services.

In recent years, one major obstacle has been removed – the long-term lease-back agreements that used to lock-in a large number of SJ's and Green Cargo's vehicles. However, there is no guarantee that SJ or Green Cargo will allow other railway undertakings to rent any spare vehicles, and SJ even seems determined not to. This must be monitored more closely in the future. Moreover, new obstacles have appeared, most prominently the costly retrofitting of vehicles for ERTMS. An overall conclusion is that the major companies seem better fit to handle the current situation.

[3] In the Government's budget proposal for 2012, it is even foreseen that ASJ can soon be dismantled and its tasks taken over by other authorities (Statens Järnvägar, 2011c).

There is a clear lack of potential actors willing to invest heavily in rolling stock. This is somewhat disturbing, as this does not seem to be a problem for example in the airline industry. Risk aversion cannot explain this behaviour entirely. In the case of Sweden, the very strong position of the CPTAs, which are benefiting from having a fleet of vehicles that to a large extent has been financed by state grants and other sources of taxpayers' money, may deter entry. Even the major international players seem focused on being contractors to the CPTAs rather than becoming their competitors. One way to offset this could be to make it easier for other companies to use the vehicles of the CPTAs.

It is clear that the cautious Swedish attitude towards intervention in the market for rolling stock has its problems. However, the same can be said about the very different and very radical approach chosen in Great Britain. The European Commission is currently thinking hard about the appropriate steps for the creation of a well-functioning deregulated rail passenger market in the EU (by means of a forthcoming fourth railway package). In this regard it seems wise to also open the door for a thorough discussion on the role of the market for rolling stock, and what can be done to make this less of an obstacle for future development.

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