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POTENTIAL MARKET FOR PROFESSIONAL CROSS-BORDER TRANSPORT OF EURO CASH BY ROAD BETWEEN EURO-AREA MEMBER STATES

FINAL REPORT

RAMBØLL

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1. INTRODUCTION

1.1 Background and policy context

The physical euro was introduced in 2002, but due to strong differences between national legislations it is in practice very difficult to transport euro cash by road between euro-area Member States on a professional basis and very little cross-border land transport therefore currently takes place. The differences between national legislations concern a wide range of issues such as the possession and carrying of firearms by the security staff, training requirements, authorised transport modalities, armouring and equipment of the security trucks, the use of intelligent banknote neutralisation systems (IBNS), number of staff in the security trucks, information towards the police, licence rules and related penalties. Cross-border transports may in some cases be arranged on the basis of ad-hoc authorisations from the Member States of destination, but apart from the administrative proceedings involved, this still involves the need to comply with two or more different sets of national rules.

At the same time it is inherent in the logic of the single currency that euro banknotes and coins should be able to circulate and be transported as freely as possible within the euro area. Commercial banks need to be able to use the cash services of the nearest Central Bank branch or CIT (cash-in-transit) cash centre, whether it is in their own country or not, whereas retailers, vending machine operators and other professional cash handlers need to be able to receive or deliver cash from/to the nearest cash centre, independently of national borders. Finally, CIT-companies that are carrying out transports in border regions should be able to plan their transport routes and other cash logistics in the most efficient manner. In general, more efficient cash transports would be able to produce overall savings of time and resources, which will ultimately also benefit the customers of the banks, retailers and other professional cash handlers.

The ECB, the banking sector and the large retail sector have repeatedly called for the launch of an initiative aimed at lifting the obstacles to the professional cross-border transportation by road of euro cash in Europe.

Against this background, the Commission adopted on 18 May 2009 a White Paper on professional cross border transportation of euro cash by road between Member States in the euro area. The purpose of the White Paper was to launch a broad-based consultation process on some envisaged common rules to facilitate the cross-border transportation of euro cash by road.

In order to assess the potential benefits of an EU legislative initiative, it is essential to estimate the potential size of the market for professional cross-border transport of euro cash by road between euro-area Member States, assuming that the current regulatory obstacles to such transports are lifted.

1.2 Objectives and tasks of the assignment

The study is intended to provide quantitative and qualitative input for the impact assessment of a possible future EU Regulation to facilitate professional cross-border transport of euro cash by road between euro-area Member States.

The objective of the study is to:

a) Examine the main characteristics of the current market for professional transport of euro cash by road within and between euro-area Member States, with a particular focus on border areas.
b) Estimate the potential size of the market for professional cross-border transport of euro cash by road between euro-area Member States, assuming that the current regulatory obstacles to such cross-border land transports are lifted.

DG ECFIN had already collected some background information concerning the legal situation in the CIT sector in each country and contact details of relevant persons in the concerned sectors at the central European level. But it is the task of contractor to collect new quantitative and qualitative information by extensive consultations of the relevant operators in the relevant countries and at European level.

To reach the objectives of the study, the contractor was asked to:

1. Identify and collect existing information on professional cross-border cash transport by road (e.g. reports, studies, statistics, media reports)
2. Collect new quantitative and qualitative information by extensive consultations of the relevant operators (commercial banks, CIT-companies, central banks, big retailers and other professional cash handlers such as big vending machine operators etc.) in the relevant countries and at European level;
3. Analyse and synthesise the information collected;
4. Elaborate a methodology in order to make a quantitative estimation of the potential market for cross-border cash transport.

1.3 Geographical scope

The scope of the study was limited to euro-area Member States. Those euro-area countries that have no land borders with other euro-area Member States, i.e. Greece, Cyprus, Finland, Ireland and Malta, were excluded. It was initially foreseen to focus on the following border regions:

- Belgium/the Netherlands/Luxembourg/France/Germany
- Austria/Slovak Republic.

In order to compensate a lack of detailed information at regional level, it was decided to embark other regions in the mainstream of data collection activities. Therefore existing or potential market for cross-border cash transport could be examined in the following border regions:

- Italy/France
- Germany/Austria
- Austria/Italy
- Austria/Slovenia
- Slovenia/Italy
- Spain/France
- Spain/Portugal

In total, 11 countries and 19 strategic border regions were included in the scope of the study.

1.4 Content of the report

The present document is the final report of the study. Taking into account that the cash transport sector is exposed to serious security threats, confidential and risk-sensitive information has been excluded.

Following the brief introduction in Chapter 1, an executive summary of the most important findings and results of the study is presented in Chapter 2. A summary of the data collection activities and achievements are presented in Chapter 3 and Chapter 4 gives a brief introduction to the main characteristics of the current market for professional transport of euro cash. Finally in Chapter 5, the estimations of the potential market for cross-border transport of euro cash and potential savings are presented.

2. EXECUTIVE SUMMARY

The aim of the study is to examine and analyse a business sector that is subject to important security concerns and a high level of competition. These factors mean that releasing any kind of business information is seen as introducing a potential risk to business operations, the safety of the employees and profitability. This has in turn implied that meeting the main aims of the study solely on the basis of information from the market players, whether these are CIT companies, credit institutions, large retailers or other agents, has not been possible. Consequently, it has been necessary to introduce alternative approaches that are less dependent on information from the market players in order to meet the terms of reference.

Current market
For the part of the study that concerns the current market the mentioned security and competition concerns have also had a number of additional consequences:

- Due to security concerns it has not been possible to gather sufficient information in order to properly examine the main risks of professional money transport.
- Due to competition concerns it has not been possible to estimate the turnover of the current market or of the potential market for cross-border professional money transport. CIT companies typically report the results of their activities in overall terms covering all activities regarding their cash logistics operations. This in turn has implied that it has not been possible to separate the money transport activities from other CIT activities for the targeted countries. The only information available concerns the total sales (i.e. turnover) of CIT companies that are members of ESTA (the European Security Transport Association). ESTA claims to represent 90 % of the CIT-industry, with total sales amounting to around 4 billion euro in 2007. This figure covers the 27 member states and four types of CIT services (transport, storage, processing, ATM maintenance).

Apart from these limitations the study of the current CIT markets in the euro-area member states shows that national markets are extremely diverse. Apart from national regulations constraining CIT operations, the variety of national markets resides mainly in the extent to which the central bank is involved in the cash cycle. In that respect, two dimensions have to be considered: the level of recycling outside the Central bank and the involvement of the Central Bank in the provision of retail cash services for final customers. Recycling activities have been transferred from the NCBs to credit institutions and CIT operators, who are entitled to reissue cash on the market under certain conditions (Eurosystem Banknote Recycling framework and its national transpositions). The way and the extent to which recycling by commercial operators is implemented however highly differ from one country to the other. In most countries, economic operators, such as CIT-companies and banks, are in charge of the provision of processing services (counting, sorting, packaging) to final customers, but exceptions remain[1]. Processing services have furthermore increasingly been outsourced to CIT-companies.

Current cross-border transport by road in the euro-area remains very limited. Reported cross-border operations concern coins mainly, for which NCBs have delegated most of their responsibilities to economic operators and it happens that operators (CIT companies and commercial banks) need cross-border arrangements to be able to service clients[2]. As far as banknotes are concerned, cross-border transport is limited to a few cross-border regions[3].

Market player perceptions on current and potential cross-border markets
According to the interviewed credit institutions, the current market for cross-border transport of euro-cash remains limited throughout the euro zone. Different legal requirements are usually mentioned as the main reason for this. There are however border regions where legal obstacles are relatively less constraining and other factors of greater importance. For instance, between

[1] For instance n Belgium and Germany where the Central Bank provides retail cash services to final clients.
[2] Cases were reported in Portugal/Spain, Belgium/The Netherlands, Belgium/Germany and Italy/Austria.
[3] Cases were reported between Austria/Slovenia, Austria/Germany and Luxemburg/Belgium.

Luxembourg and Belgium, it is mainly higher prices in Luxembourg, which prevent cross-border transports to develop further in order to supply the southern Belgium region from the more closely located cash centres in Luxembourg. In Austria, legal requirements (the legislation is said to be not so detailed in Austria) and institutional factors (Austrian customers on the other side of the border using their normal cash provider) seem to stimulate cross-border transport. It is actually between Austria and Slovenia that the biggest values for cross-border cash transports were reported (1.5 billion euro/year ordered from customers in Slovenia).

In regard to the potential cross-border markets, credit institutions expect lower costs for cash handling to be the main facilitator for these cross-border markets to materialise. Lower cash handling costs are expected to accrue from lower market prices on the other side of the border, shorter travel distances, increased competition on domestic markets, single contracts to service locations on both sides of the border and integrated cash management throughout countries. In Luxembourg, for instance, where prices seem to be high, the European Payment Council (EPC) members estimate that about 1/3 of the domestic demand could be supplied cross-border. Alternative options to cash transport and supply were also mentioned by some of the EPC members, in case of shortcuts. This already happened in the past, such as in Italy for instance.

If all regulatory obstacles are lifted, the demand side expects cross-border transport to increase significantly in the future. This is all the more the case when credit institutions have branches on both sides of the border. There are however regions, where the demand for 'retail' transport, as opposed to 'point-to point' transport,[4] is seen as being limited, mainly due to either no cross-border settlement or little economic activities.

Potential cross-border market
For the part of the study that concerns the potential market for cross-border professional money transport it has - as mentioned - been necessary to introduce alternative approaches that are less dependent on information from the market players. Eventually this has implied using an approach that is built around the relationship between traffic and economic activity and the working assumption that in an open and free market, where current regulatory obstacles to cross-border transport have been lifted, the amount of professional money transport on roads - both national and cross-border - will be proportional to the amount of total transport.

On the basis of this approach it has been possible to estimate the potential market for professional money transport measured in terms of the number of cross-border transports, the share of the total euro ordered that will be diverted to cross-border transports and the savings in travel distance that can accrue from cross-border transport. These estimations concern the 11 targeted countries and 19 border regions.

Number of cross-border CIT transports
In the long-term the estimated number of CIT cross-border transports is 212 pr. day between the 11 countries covered by the study (transport being defined as crossing the border twice - on the outbound and on the homebound journey). The highest frequency of cross-border transports is concentrated on the borders between Germany, Austria, The Netherlands, Belgium, Luxembourg and France, where the estimated CIT cross-border transports is 152 pr. day corresponding to around 70 percent of total transports. On the borders between Austria, Italy, Slovenia, Slovakia, France, Spain and Portugal the estimated transport frequency is relatively lower given by 60 CIT cross-border transport pr day or around 30 percent of total transports. The 212 CIT cross-border transport pr. day corresponds to 77 380 transports pr. year. It should be noted that, due to the method used to calculate it, the long-term potential market for CIT cross-border transport might be underestimated as there are currently obstacles to total cross-border traffic (such as linguistic and other barriers to take up work and commute across the border) which is thus not at its full potential level, whereas possible future traffic increases or euro-area enlargement are not taken into account either.

[4] Point-to-point means from cash center to cash center, whereas 'retail' means delivery and pick-up of cash to/from final customers, notably commercial banks and retailers as well as ATMs (Automated Teller Machines). See section 4.1 for a more complete explanation.

In the short-term the estimated number of transports equals the long-term after correction for the locations and operational radiuses of cash centres and national central bank branches, the cross-border location and density of commercial bank branches and large retailers. This means that the total number of cross-border transports is reduced from 212 to 155 pr. day. The main part of the cross-border CIT-transport is still concentrated on the borders between Germany, Austria, The Netherlands, Belgium, Luxembourg and France. The 155 CIT cross-border transports pr. day corresponds to 56 575 transports pr. year.

Share of euro ordered that is transported by cross-border CIT transport
In the long-term, the total amount of euro ordered that will be transported by cross-border CIT transports is estimated to around 30.9 billion euro. This corresponds to around 2.6 percent of total euro ordered in the targeted countries. The highest shares of euro transported by cross-border transport are estimated to be in The Netherlands, Belgium and Austria, where cross-border shares of euro ordered are 5.9 - 9.4 percent, while the lowest shares are in Italy, Spain and Portugal.

In the short-term the long-term pattern across countries is the same, but the total share of euro transported by cross-border CIT transport is reduced from 2.6 to 1.9 percent.

Savings in travel distance, fuel and CO2 from cross-border CIT transport
On the basis of a geometric approach and the mapping of the locations of cash centres in the 19 targeted border areas it has been possible to estimate the average savings in travel distance for CIT transport if a cross-border market materialises. The results show that the typical savings in travel distance is around 19 km pr outgoing or ingoing trip, but also that these distance savings are subject to significant variations across the different border areas. In some areas the savings in distance are only around 1-2 kilometres, while the savings in other border areas are as high as 45 kilometres. Overall, the standard deviation of the savings in distance is around 14 km.

The estimated savings pr trip can be aggregated into total savings pr. day and pr. year. This shows that cross-border CIT transports can save around 2.7 million km pr year in the long-term and 2.0 million km pr year in the short-term. This corresponds to 0.8 and 0.6 percent, respectively, out of the total kilometres that CIT companies travel pr year. In terms of associated savings in fuel and CO2 emissions, the reduced travel distance means reductions in fuel consumption according to 0.4 million litres of diesel per year in the long-term and 0.3 million litres in the short-term, while the reductions in CO2 emissions are 800 tonnes in the long-term and 600 tonnes in the short-term.

It should however be emphasised that the role of travel distance savings in regard to its ability to facilitate CIT cross-border transports is assessed to be of less importance than other factors that also are expected to accrue from increased cross-border transports like e.g. more efficient contract handling, the possibility of placing larger orders at one single CIT company and increased competition among CIT companies. This assessment is based on both the perceptions of the demand side players and on economic assessments regarding the size of the different possible savings from CIT cross-border transport. Thus, saving 19 kilometres on average in travel distance is not likely to be as important as the possibility of e.g. multi-country retailers (such as supermarkets, furniture stores etc) to place a single order for CIT services covering two or more countries on the basis of tenders received from a larger and more competitive number of CIT companies.

3. DATA COLLECTION

The collection of data was one of the main challenges of this study. Indeed, the contractor had to deal constantly with an extreme diversity of national CIT markets - due to different regulation and histories of the Central Banks - and limited access to data - due to high competition and security issues. Therefore, the data collection strategy had to be constantly revised during the study in order to accommodate these constraints and deliver satisfying result. The methodology also had to address these limitations.

Data collection activities consisted in two main strands:

- Desk researches, including an intense mapping exercise of CoB (commercial bank) cash centres, commercial bank branches, ATMs (Automated Teller Machines/cash dispensers), retailers and CIT cash centres (addresses and geographic information system codes).
- Interviews with market players, including face to face, phone and email interviews and follow-ups with Central Banks (who proved to be a central source of information in this study), CIT companies, credit institutions and retailers. These interviews and regular contacts constituted the core data collection activities.

A more detailed description of the outcome of the data collection process is presented in Annex B.

4. INTRODUCTION TO THE CURRENT MARKET FOR PROFESSIONAL MONEY TRANSPORT

CIT Transport services as such can be divided into two main categories: 'Point-to-point' (or 'wholesale') transport services and 'Retail' transport services.

The first category concerns transports of large-value (or large volume in the case of coins) bulk quantities of cash between cash centres, for example from a NCB branch to a CIT cash centre. These transports do not make any intermediate stops, but go directly from point to point. Since the quantities are high, the cash is usually protected by CIT-guards who are travelling in armoured vehicles and possibly accompanied by police or military escort, depending on the country.

The second category concerns delivery and pick-up of cash to/from final customers, notably commercial banks and retailers as well as ATMs (Automated Teller Machines). The delivery/pick-up is carried out by a security vehicle that is typically servicing a large number of cash points during its shift (around 20-25 stops/day seems to be common). The cash may be protected by IBNS depending on the national regulations and practices. These transports are typically carried out between a CIT cash-centre and the final customers, but in case the NCB has a policy of packaging cash for final customers it may also be carried out between NCB branches and final customers (by CIT-companies).

Along with transport services, the range of CIT services differs from country to country. In this regards, a systematic examination of the national cash-in-transit markets highlights their extreme diversity. Apart from national regulations constraining CIT operations, the variety of national markets resides mainly in the extent to which the central bank is involved in the cash cycle. In that respect, two dimensions have to be considered: the level of recycling outside the Central bank and the involvement of the Central Bank in the provision of retail cash services for final customers. Recycling activities have been transferred from the NCBs to credit institutions and CIT operators, who are entitled to reissue cash on the market under certain conditions (recycling frameworks). The way and the extent to which recycling by commercial operators is implemented however highly differ from one country to the other. In most countries, economic operators, such as CIT-companies and banks, are in charge of the provision of processing services (counting, sorting, and packaging) to final customers, but exceptions remain[5]. Processing services have furthermore increasingly been outsourced to CIT-companies.

The number of characteristics and the level of detail in the examination of CIT markets very much reflect the willingness and also opportunities of the involved parties in regard to supplying information and data, cf. also Annex B.

[5] In Belgium, for instance, the central bank still has commercial agreements with economic operators, enabling direct transport of cash from/to the NCB to/from the final customers

Thus, the study deals with a highly competitive and sensitive high risk business where available data is scarce and difficult to obtain.

5. ESTIMATE OF THE POTENTIAL MARKET FOR PROFESSIONAL CROSS-BORDER MONEY TRANSPORT

5.1 Introduction

The estimate of the potential cross-border market for professional money transport will be carried out on the basis of a traffic based approach, cf. section 5.2 below. This means that the cross-border market size will be determined on the basis of the assumption that in an open and free market, where current regulatory obstacles to cross-border transport have been lifted, the amount of professional money transport on roads - both national and cross-border - will be proportional to the amount of total transport.

According to this approach the size of the potential cross-border market is determined by the share of CIT transport out of total transport in each of the targeted countries.

In the long-term this implies that if a CIT transport on average makes up 1 out of every 10 000 vehicles on the road network of certain country the same CIT transport intensity is assumed for the outgoing transport on the cross-border roads of this country. The long-term estimate is considered the potential market size if there are no obstacles whatsoever for professional cross-border money transport. This is naturally a strong assumption that will require substantial market adaptation.

However, even though the long-term estimate is based on strong assumptions regarding market adaptation, it is also conservative in the sense that it is based on the current short-term traffic level and does not take into account that there are current obstacles to total traffic. An example of such obstacles may be linguistic and other barriers that prevent people in border regions from taking a job as easily across the border as in their own country leading to less cross-border commuting and traffic. Since total traffic volumes may increase in the future and more EU Member States are likely to adopt the euro in the coming years the long-term potential for cross-border transport of euro cash is likely to increase. In this sense the absolute long-term potential would therefore normally be higher than this traffic-based potential. To estimate possible future traffic increases or the impact of obstacles to cross-border traffic in general in order to calculate a long-term potential base for the estimation of CIT cross-border traffic is, however, out of the scope of this study.

In the short-term different factors will prevent the long term-estimate from materialising. Even if the current regulatory obstacles are lifted, the long-term assumption of an open and free market will be challenged by the current structure of the money transport market and will require reallocation of, or building of, new cash centres, changes of current contract management, regulation and cash cycles, etc. Thus, in the short-term at least the following factors will prevent the long-term market from materialising:

1. The location and operational radius of cash centres and central bank branches.
2. The cross-border settlement and density of commercial bank branches and large retailers.
3. Any other criteria raised by either the demand (commercial banks and retailers) or supply side (CIT companies) when relevant. These include differences in price levels and crime patterns.

The short-term estimate therefore consists of the long-term estimate as corrected to take into account the limiting impacts of the above factors.

Following this introduction Chapter 5 continues with a description of the traffic approach in section 5.2 outlining the basic logic, data requirements and results of the approach. In section 5.3 the data for the traffic approach is described and presented. In section 5.4 data on bank

branches, retailers, operational radiuses of cash centres are identified in order to prepare for an estimate of the short-term potential market. Section 5.5 provides an overview of the examined border regions. The targeted border regions consist of 19 different areas between both the primarily and secondary targeted countries. Finally, in section 5.6, a summary of the results of the potential market is presented.

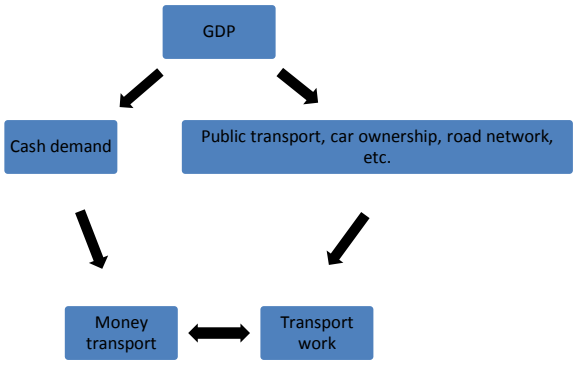
5.2 A traffic approach to estimate the market size

Due to the security and competition concerns of CIT companies the originally outlined approaches for the estimation of potential cross-border market size are not feasible and alternative analytical approaches are necessary. A traffic based approach for estimating the size of the potential market for professional cross-border transport of euro-cash by road was then proposed as the best possible methodological answer to this challenge.

5.2.1 Purpose and working assumption

The purpose is to estimate the size of the potential market for professional cross-border transport on the basis of traffic data. The underlying assumption is that in an open and free market, where current obstacles to cross-border transport have been lifted, the amount of money transport on roads - both national and cross-border - will be proportional to the amount of total transport work, where transport work is defined as the number of vehicles multiplied by the average vehicle kilometres.

The approach is based on the relationship between total transport work and money transport. That there should be a relationship between these two factors is intuitive and logical. GDP is a strong determinant for both factors so when one goes up or down the other should follow.



However, due to the abovementioned concerns of the CIT companies and the resulting lack of detailed information on CIT transport work, it is not possible to empirically validate a direct relationship between transport work and money transport.

Instead their mutual dependence on GDP can be used to support the approach.

In regard to *GDP=>[public transport, car ownership, road network, etc.]=>Transport work*, this relationship has been investigated and documented in many studies. For example in an EC study from 2002, where the relationship between different levels of GDP per capita and car ownership was estimated by means of an econometric model based on data for EU 15. Transport work was subsequently estimated on the basis of the estimated car demand elasticities and information on vehicle kilometre for ownership of the first and second car[6].

[6] Strategic Plan for Road Infrastructure Maintenance and Development, Montenegro, Project EAR/02/MTG01/03/001,2002.

In regard to *GDP=>Cash demand=>Money transport*, the first part of the chain given by the relationship between GDP and cash demand can be illustrated by looking at the country-specific correlation between GDP and cash withdrawal from ATMs in the period 2000-2007, c.f. Table 5.1 below.

Table 5.1 Correlation between cash withdrawal and GDP, 2000-2007

Austria	Belgium	Germany	Spain	France	Italy	Luxem-bourg	Nether-lands	Portugal
0.97	0.96	0.61	0.99	0.99	0.52	0.86	0.87	0.99

Source: Eurostat and own calculation

Due to different levels of alternative cash sources and means of payments such as over the counter at a bank and the use of electronic means of payments, the correlation between GDP and cash withdrawals from ATM's varies between the countries. Since the lowest correlation is around 0.50 and since cash received over the counter at a bank in some countries like e.g. Germany is widespread and will add to the total cash demanded, the relationship between GDP and cash demand must be considered substantial and thereby supporting the underlying assumption of the traffic approach.

According to 2006 World Payment Report the value of ATM cash withdrawals relative to GDP across 17 European countries is close to an average of 9.5 percent and has changed little from the average of 9.9 percent in 2000.[7].

5.2.2 The traffic approach step 1-2

The traffic approach is simple and basically consists of two steps in order to estimate the potential market for cross-border money transport when it is measured in terms of the number of border-crossings of CIT vehicles and thereby the number of cross-border CIT transports.

In the approach the following abbreviations are used:

CIT(KM_country)	=	Total annual km of CIT transport/country
AADT(country)	=	Annual Average Daily Traffic/vehicle type/country (number of vehicles)
VEHICLE(KM_country)	=	Kilometres/vehicle type/country
AADT (road)	=	Annual Average Daily Traffic/road
VEHICLE KM (road)	=	Kilometres/road

Step 1: Ratio of CIT transport work / total transport work (pr country):

$$\pi = [CIT(KM\_country)]/[AADT\ (country) \cdot VEHICLE(KM\_country)]$$

In Step 1 the frequency of CIT vehicles on the roads compared to total transport work is assessed. In order to correct for national differences in the cash cycle and transport patterns, the CIT frequency is assessed for each of the targeted countries.

Step 2: Cross-border CIT transports (pr cross-border road):

$$Cross\ border\ CIT\ trips\ (number) = \pi \cdot [AADT\ (road)]$$

$$Cross\ border\ CIT\ transports\ (number) = \ Cross\ border\ CIT\ trips\ (number)/2$$

[7] World Payment Report, Capgemini, ABN AMRO and the European Financial Management & Marketing Association (EFMA)

In Step 2, the CIT frequency is multiplied with the annual average daily traffic (AADT) on each of the cross-border roads in the targeted countries in order to estimate the number of potential cross-border CIT transports. These estimates pr road can straightforward be summed to estimates pr border regions and pr country, and also into an estimate for the entire euro area as well as some secondary countries.

As mentioned in the introduction, these numbers of potential cross-border money transports are the long-term estimates under the assumption that there are no obstacles whatsoever for professional cross-border money transport. In order to carry out short-term estimates a correction of the long-term estimates for a number of limiting factors that will prevent the long-term market from materialising is necessary.

5.2.3 The traffic approach step 3

In addition to step 1-2, the traffic approach also includes a third step, where an estimation of euro transported in the potential cross-border market is carried out.

Thus, in addition to an estimation of the frequency of cross-border money transports, the terms of reference also require an estimate of values and volumes of the transported cash. Also in connection with the description of the main characteristics of the current market the terms of reference requires information on "the typical values and volumes transported by a CIT-vehicle as well as the aggregate values and volumes by country and at euro-area level".

In regard to volumes, CIT companies concurrently stated that volumes is not used in their business model and therefore not considered relevant a parameter. Weight is sometimes taken into consideration, but only in order not to go beyond the capacity of vehicles. Consequently the CIT companies hardly collect information on volumes carried.

In regard to values, the mentioned security concerns have made it impossible to obtain any information of this kind from the CIT companies. Consequently, the possibility of assessing the total value of cash transported using aggregated information at national level on the cash issued, processed, recycled and returned to the national central bank in each country has been investigated.

This requires a thorough analysis of the cash cycle in each country in order to estimate the number of times one euro is transported in order to accomplish a cycle, i.e. the length of the cash cycle, including e.g. the possibility of direct transport from the central bank to customers or from customers to the central bank. This assessment has been carried out but, due to detained, lacking or imprecise information, the result is not satisfying and suitable for use.

It is the general impression from conducting the study that it is not possible to obtain sufficient information in order to properly take into account the impact of all logistic structures in the cash cycle such as: many clients are being serviced during a single transport, the service frequency of one client can vary depending on the clients' capacity or willingness to store cash, cash delivery and collection is always executed simultaneously whenever a CIT vehicle stops, etc.

In summary, it is not possible to assess the number of km one euro travels before delivery, which in turn means that it is not possible to estimate the value of cash a CIT vehicle carries whenever it is on the road.

Alternatively, in order to be able to give some kind of euro estimate regarding the size of the current national markets and the potential market for professional cross-border transport of euro-cash, it is proposed to use an estimate of the cash ordered to CIT companies as the unit of measurement. This is a simple unit, which enables a useable and comparable estimate of the CIT markets size. It actually encompasses the whole CIT market, regardless the complexity and length of the cash cycle and transportation.

Thus, using cash ordered instead of cash transported simplifies the assessment through enabling the exclusion of many country specific structural characteristics of the national CIT markets. These characteristics imply that the number of CIT kilometres travelled in order for one euro to be delivered to a customer in a specific country varies substantially and depends on that country's specific cash cycle. E.g.:

- Usually, transport services constitute a small part of a contract with CIT companies. Together with transport services, CIT contracts include other CIT services such as: processing, framework-checking, lodgement, ATMs maintenance etc. The provision of other CIT services depends on the organisation of the cash cycles and national markets. The degree to which Central Banks have delegated cash recycling and to which credit institutions have outsourced their cash processing activities varies across the euro area. CIT services are the same in all countries. The difference lies in the division of work between the central banks, the credit institutions and the CIT companies. Therefore, in one country, one euro ordered to CIT companies "generates" a proportional "volume" of other CIT services that has an impact on the euro transported and the kilometres travelled.
- Transport services to final customers include both cash delivery and collection. The two operations are normally executed simultaneously when a CIT vehicle stops: while the volume of cash delivered and collected might differ, the service is combined. In addition to this, the ratio of EUR delivered/EUR collected depends on the cash cycle and is deemed to be stable. Therefore, in one country, one euro ordered to CIT companies "generates" a proportional number of cash delivery and collection.

Using cash ordered renders these considerations unnecessary and simplifies the analysis. At the same time multiplying total cash ordered by the total number of kilometres of CIT transport provides a good indication of the efficiency of the cash transport services in a specific country measured in terms of the number of kilometres a euro need to travel in order to meet cash demand given the country's topography, population density, etc.

The value of euro cash ordered to CIT companies in a specific country can be estimated as follows:

$$CIT(EURO\ ORDERED\_country) = cash\ issued\ by\ NCB + cash\ recycled\ by\ CIT\ companies$$

- *Cash issued by NCB*:

  This is the cash physically issued by a national central bank (NCB) to satisfy the demand. The cash is collected by CIT vehicles at the NCB location (or at CIT cash centres/bank cash centres if the 'notes held to order scheme' applies) and then delivered to the customers.

- *Cash recycled by CIT companies:*

  This is the cash reissued directly to their customers by CIT companies. In countries where commercial parties recycle cash, the cash collected by CIT companies from their customers is processed and framework-checked in CIT cash centres. The money that fits to the standard requirements is then delivered to customers by CIT vehicles. Only unfit money and surplus is sent back to the NCB through point-to-point transport operations. The amount of cash recycled by credit institutions in front office is not taken into account in assessing the demand for professional CIT transport. Indeed, it usually concerns cash that is collected by the credit institutions at the cashiers' desk or ATMs (deposit by small retailers or individual clients), and that is processed and recycled in front office at the commercial branch or ATM levels. In this case, CIT companies are not involved.

Depending on data availability, the use of cash ordered requires a minimum of calculations, which fully relies on the data provided by the National Central Banks. The result should be treated as an estimate.

Step 3: Total euro demand serviced by cross-border CIT transports:

$$Cross\ border\ CIT\ transports\ (euro\ ordered) =$$

$$\left[CIT(EURO\ ORDERED\_year\_country\ A) \cdot \left[\frac{\left(Cross\ border\ transports\ (number\_year)/2 \cdot (length\ of\ CIT\ transports(km\_day\_country\ A)\ )\right)}{CIT(km\_year\_country\ A)}\right]\right]$$

$$+\left[CIT(EURO\ ORDERED\_year\_country\ B) \cdot \left[\frac{\left(Cross\ border\ transports\ (number\_year)/2 \cdot (length\ of\ CIT\ transports(km\_day\_country\ B)\ )\right)}{CIT(km\_year\_country\ B)}\right]\right]$$

Where:

$$Length\ of\ CIT\ transports\ (km\_day\_country) = \frac{CIT(km\_year\_country)}{Total\ CIT\ vehicles(number\_country)} / working\ days\ per\ year$$

In Step 3, the diversion of the euro ordered to CIT companies in country A to CIT companies in country B from customers in country A and vice versa is estimated. Since Trans-tool does not allow an origin-destination distinction of traffic on the road network it is not possible for a certain border-road to determine how much of the total traffic, that comes from country A and country B, respectively. It is therefore assumed that country A and B equally split the estimated cross-border money transport from step 2. An equal split is a working assumption assessed on the basis of the fact that there are no clear cases where the potential cross-border transport only goes one way, i.e. only from country A to country B. Usually the potential cross-border transports goes both ways.

5.3 Data for the traffic approach

Step 1-2 of the traffic approach requires the following data measured for each of the targeted countries:

- Total transport work
- Road-specific information on traffic and transport work.
- CIT transport work

Step 3 of the traffic approach requires the following data measured for each of the targeted countries:

- Estimated number of cross-border money transports (step 2 of the traffic approach)
- Total euro ordered pr country
- Total number of CIT vehicles and estimation of the length of CIT transports

Each of these data are described and presented below.

Total transport work

Total transport work is calculated by multiplying the total number of motor vehicles by the average distances they travel throughout the year. Motor vehicles include passenger cars, buses, lorries, and vans, but not motorcycles or mopeds. This information has been provided by the World Resources Institute as well as National Road Directorates, cf. Table 5.2 below[8].

Table 5.2 Total transport work (million vehicle kilometres)

Country	2008[1]	2007[1]	2006	2005	2004	2003
The Netherlands	145 109	132 292	120 608	118 445	117 995	114 555
Belgium	123 207	111 142	100 258	97 405	93 500	92 030
Luxembourg	5 583	5 000	4 477	4 337	4 201	4 069
France	568 584	557 994	547 600	547 500	552 500	548 900
Germany	693 810	671 893	650 667	639 000	652 100	639 100
Austria	83 380	77 250	71 570	70 296	70 171	69 167
Slovakia	14 831	13 521	12 327	12 106	12 060	11 708
Italy	94 707	86 342	78 716	77 304	77 010	74 766
Slovenia	15 966	13 522	11 452	11 047	10 864	10 307
Spain	296 105	269 951	246 108	241 694	240 776	233 757
Portugal	69 838	63 670	58 046	57 005	56 789	55 133

Note: [1] Extrapolated values based on the period 2006-2001

Source: World Resources Institute and National Road Directorates.

Road-specific traffic and transport work

Road-specific information on traffic and transport work has been provided by the EC in terms of a comprehensive data set from the EC digital map Trans-Tool covering all of Europe. Trans-Tool is administered by the EC research institute in Sevilla and is developed by the Department of Transport at the Technical University of Denmark and Rapidis a transport consultancy. The map contains the overall road network and is rather rough digitalised. In return it contains quite a number of traffic counts and also model estimations implying counts or modelled traffic for all edges (roads). The traffic is measured in terms of cars and trucks and handles different time periods like rush hour, holidays, etc. On the basis of the Trans-Tool data it is relatively straight forward to convert traffic to vehicle km (transport work), which is needed for the approach.

CIT transport work (and the CIT frequency - n)

CIT transport work is the total number of kilometres that CIT vehicles travel pr year in each of the targeted countries. This information has been provided by large CIT companies and coordinated and processed by ESTA, cf. Table 5.3 below.

[8] Some data may not consist of all the motor vehicle classifications.

Table 5.3 CIT transport work and market share of reporting CIT companies, 2008

Country	Transport work (million km)	Reporting CIT companies	Market share (%)
Netherlands	14.2	Brinks, G4S	90%
Belgium	8.3	Brinks, G4S	100%
Luxembourg	1.6	Brinks, G4S	95%
France	53.0	Loomis, Brinks	85%
Germany	133.3	BDGW (CIT assoc.)	90%
Austria	7.5	Loomis	80%
Slovakia	6.7	Loomis, G4S	80%
Italy	45.0	Assovalori (CIT assoc.)	80%
Slovenia	0.4	Loomis	-
Spain	32.0	Loomis, Prosegur	90%
Portugal	10.0	Loomis, Prosegur	40%

Source: ESTA and CIT companies.

Apart from Belgium, the reporting CIT companies do not have full market dominance, i.e. their market share is not 100 percent but varies from 40-95 percent. Consequently, in order to assess the total CIT transport work, it is assumed that the transport work of the reporting companies is representative for the transport work of the CIT companies that have the remaining market shares. Since the CIT markets are heavily regulated and the services of CIT companies therefore harmonised and since the remaining markets shares are small, this correction is assessed to introduce only a small imprecision in the overall assessment, c.f. Table 5.4 below.

Table 5.4 CIT transport work and the CIT frequency, 2008

Country	CIT transport work (million km)	Total transport work[1] (million km)	CIT ratio (% CIT km)	Market share of reporting CIT companies	CIT transport work (corrected for market share) (% CIT km)	CIT ratio (corrected for market share) (EURO)
	(I)	(II)	(I)/(II) =(III)	(IV)	(1-(IV))+1) *(I) =(V)	(V)/(II) =(VI)
Netherlands	14.2	145 109	0.010%	90%	15.6	0.011%
Belgium	8.3	123 207	0.007%	100%	8.3	0.007%
Luxembourg	1.6	5 583	0.029%	95%	1.7	0.030%
France	53.0	568 584	0.009%	85%	61.0	0.011%
Germany	133.3	693 810	0.019%	90%	146.6	0.021%
Austria	7.5	83 380	0.009%	80%	9.0	0.011%
Slovakia	6.7	14 831	0.045%	80%	8.0	0.054%
Italy	45.0	94 707	0.048%	80%	54.0	0.057%
Slovenia	0.4	15 966	0.002%	-	-	-
Spain	32.0	296 105	0.011%	90%	35.2	0.012%
Portugal	10.0	69 838	0.014%	40%	16.0	0.023%

Note: [1] Extrapolated values based on the period 2006-2001

Source: ESTA, National Central Banks and World Resource Institute.

The above national CIT frequency is the basis for estimating the expected frequency of CIT transports on cross-border roads. Thus, the frequency of CIT transports on cross-border roads is calculated by multiplying the national CIT frequency by the average annual daily traffic (AADT) on the cross-border roads.

Total number of CIT vehicles and estimation of the length of CIT transports
Due to safety and security considerations, it has not been possible to collect any information from the CIT companies regarding the characteristics of the CIT transports hereunder the length of the typical CIT transport[9]. It has therefore been necessary to use alternative ways of assessing this information.

In addition to the total transport work of CIT vehicles, ESTA has provided information on the total number of CIT vehicles in 2007. On the basis of this information it follows that a straightforward estimation of the total annual transport length pr CIT vehicle can be carried out by dividing the transport work with the total number of vehicles, cf. column IV in Table 5.5 below.

Table 5.5 CIT transport work and estimate of euro ordered, 2008

Country	Euro ordered (million EUR)	CIT transport work (million km)	CIT vehicles (number)	CIT transport length (km/vehicle/ year)	CIT transport length (km/day)
	(I)	(II)	(III)	IV=(II)/(III)	V=IV/265
The Netherlands	65 022	15.6	325	48 062	181
Belgium	45 234	8.3	352	23 580	89
Luxembourg	-	1.7	55	30 545	115
France	178 366	61.0	2 096	29 079	110
Germany	515 900	146.6	2 778	52 783	176
Austria	67 648	9.0	200	45 000	170
Slovakia	8 313	8.0	-	-	
Italy	174 238	54.0	1 500	36 000	136
Slovenia	4 035	-	-	-	
Spain	114 058	35.2	1 150	30 609	116
Portugal	23 630	16.0	450	35 556	134
Total	**1.196.444**	**355**	**8.906**	**-**	**-**
Average	**-**	**-**	**-**	**36.801**	**136**

Source: ECB, NCBs, ESTA and Ramboll[10]

On average and roughly speaking, a CIT employee works 8 hours a day. Assuming four hours is used on deliveries/pick-ups (20 stops pr. transport and 12 minutes pr. stop[11]), that leaves four hours on the road. This approximately corresponds to 23-55 km/h (89-221 km/day/vehicle, cf. column V in Table 5.5 above). This is not unreasonable considering that most transports are carried out in high population density areas.

While the assessment of CIT annual transport length is purely based on information provided by ESTA, the corresponding assessment measured pr. day has an additional moment of uncertainty in terms of the number of assumed working days, i.e. the 265 working days[12]. Thus, it has not been possible to obtain information on the actual number of working days for CIT companies.
In order to avoid this additional moment of insecurity, step 3 of the traffic approach can be re-written in order to use the total annual transport length of CIT vehicles as opposed to the daily transport length pr CIT vehicles. The above estimation of transport length pr. day is however still

[9] Some indications were collected from EPC members
[10] Rough general estimate from ESTA.
[11] Assessed by EPC and Ramboll on the basis of interviews.
[12] This is valid except for Germany, where the German Bundesbank has informed the consultant that CIT-vehicles generally operate around 300 days per year.

useful as a point of reference for the assumption of operational radiuses of cash centres in the next section.

Rewritten Step 3 of the traffic approach:

$$Cross\ border\ CIT\ transports\ (euro\ ordered) =$$

$$\left[CIT(EURO\ ORDERED\_year\_country\ A) \cdot \left[\frac{(Cross\ border\ transports\ (number\_day)/2)}{Total\ CIT\ vehicles(number\_country\ A\ )}\right]\right]$$

$$+\left[CIT(EURO\ ORDERED\_year\_country\ B) \cdot \left[\frac{(Cross\ border\ transports\ (number\_day)/2)}{Total\ CIT\ vehicles(number\_country\ B)}\right]\right]$$

5.4 Data for the short-term estimation of the potential market for cross-border transport

As described in the introduction to this chapter, the short-term estimation of the potential market for cross-border money transport equals the long-term estimation corrected - as far as possible - with the following factors:

1. The location and operational radius of cash centres and central bank branches
2. The cross-border location and density of commercial bank branches and large retailers
3. Any other criteria raised by either the demand (commercial banks and retailers) or supply side (CIT companies) when relevant. These include differences in price levels and crime patterns

The location and operational radius of cash centres and central bank branches
In terms of cash centres, the estimation of the short-term market focuses on areas where a cash centre on one side of the border is able to provide services to banks and retailers on the opposite side of the border. The assessment of whether and to what extent this is possible depends on the operational radius of the cash centre.

In section 5.3 the average length of a CIT transport was assessed to around 136 km pr. day. This assessed transport length is a useful first point of reference in order to estimate the approximate operational radius of a given cash centre in the targeted countries. On the basis of the perceptions of the demand side players (it was not possible to obtain any precise figures from the supply side) and given the uncertainty and variation across and within countries, not the least between urban and rural areas, the assessed 136 km. pr. day is turned into a working assumption that a CIT vehicle can potentially operate in an area that is approximately 100 km crow flies from its origin.

The aim of assessing the operational radius of the cash centres is to assess the importance of the location of these centres in term of the ability of diverting cash demand from the neighbouring country.

Cash centres can be owned either by CIT companies, commercial banks or national central banks. Some national central bank branches will also be excluded from the analysis due to the fact that in some countries, and according to the information provided by the central banks, direct delivery from the central bank to the final customers is not possible: money has to be counted and packaged first by the CIT companies in the cash centre.

Most national central bank branches can support point-to-point services to CIT cash centres in another country, but in the short term this is assumed less relevant compared to retail transport and is therefore only included in the long term assessment.

The cross-border location and density of commercial bank branches and large retailers
All things being equal, the higher the customer demand for cross-border money transport the higher the likelihood that the long-term market will also materialise in the short-term. As a part of the short-term estimation, it has therefore been investigated whether there are banks and large retailers that operate on both sides of the border area.

The underlying logic of this assessment is that there will be large-scale effects and more efficient contract management in border regions if CIT customers with business activities on both sides of a border can be serviced by a single CIT company instead of having separate CIT contracts on each side of the border. Thus, by looking at the individual border regions and locating commercial banks and retailer on each side of the border it is possible to assess whether or not a specific CIT company will be able to support and supply a specific bank or retailer in that region.

For this assessment large commercial bank and retailers with activities on both sides of the border have been identified and used as determinants for the short-term estimates.

Any other criteria raised by either the demand or supply side when relevant. These include differences in price levels and crime patterns

Both demand and supply side of the market has been interviewed for the study. On the demand side the interviews primarily focused on assessing the expected behaviour of credit institutions and retailers if obstacles to CIT cross border transport are lifted. On the supply side the interviews focused on any side information on the functioning of the CIT market that the ESTA or the CIT companies could provide.

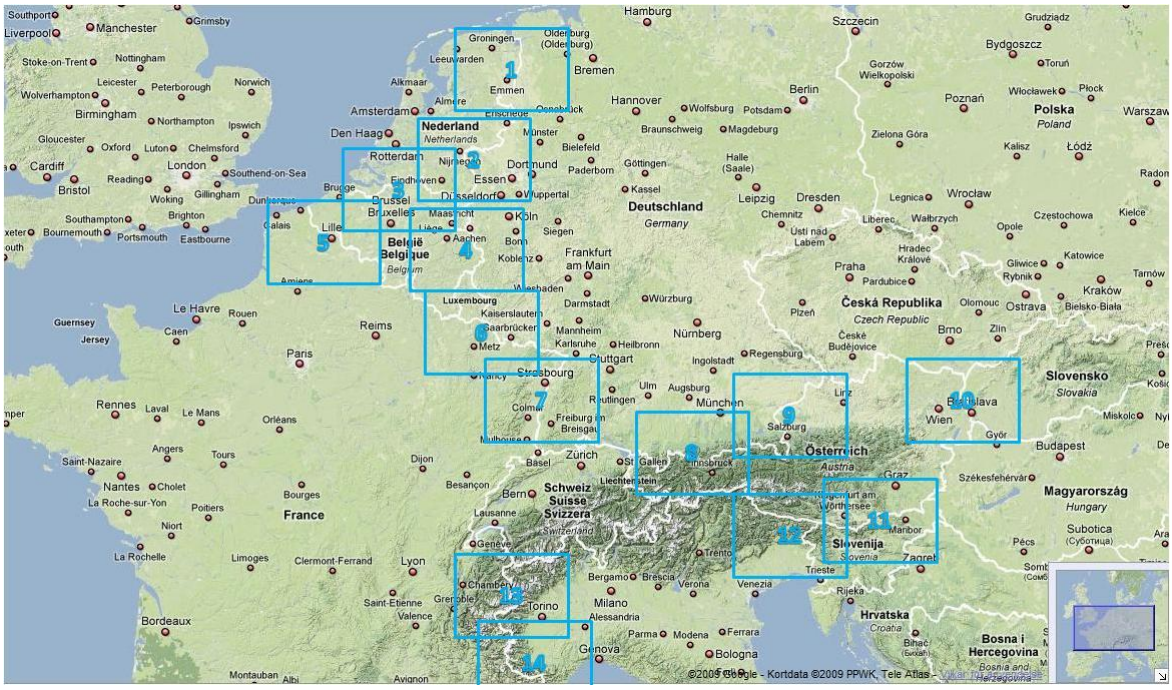
The information collected is used when relevant to the estimate of the potential market size for cross-border transport. It is further supported by data on:

- Level of competition (number of operating CIT companies) and salaries as an indication for relative prices
- Crime data (confidential)

5.5 Analysis of potential markets for cross-border transport of euro cash

The long-term and short-term potential cross-border markets for professional money transport have been examined in all of the targeted border regions. The targeted border regions has been divided into 19 different areas between both the primarily and secondary targeted countries, cf. Map 5.1 and Map 5.2 below.

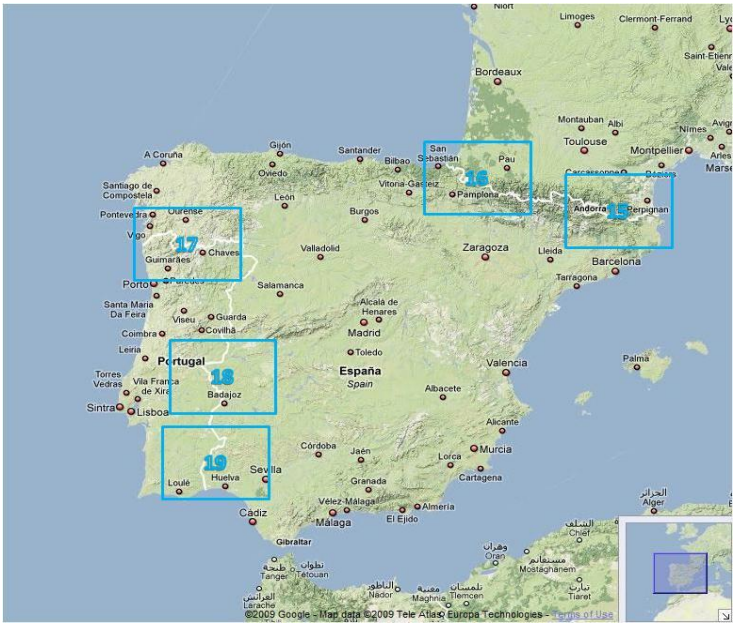
Map 5.1 Overview of the analysis of potential markets for cross-border transport of euro cash



Source: Google – Map data ©2009 Tele Atlas and National Central Banks.

For each of these 19 areas a long-term and short-term estimate is presented. The long-term estimate is carried out on the basis of the traffic approach's step 1-2, cf. section 5.2, while the short-term equals the long-term estimate corrected for the locations and operational radiuses of cash centres and national central bank branches, the cross-border location and density of commercial bank branches and large retailers and other limiting factors such as differences in price levels and crime patterns, cf. section 5.4.

Map 5.2 Overview of the analysis of potential markets for cross-border transport of euro cash



Source: Google – Map data ©2009 Tele Atlas and National Central Banks.

5.6 Summary of estimates of the potential market for professional money transport

On the basis of the estimates of the number of long-term and short-term CIT cross-border transports in the 19 border regions, the total results for all the considered countries are presented in this section. In addition estimates of the share of total euro ordered that will be diverted from domestic to cross-border CIT transport is presented as well as estimates of the total savings in travel distance.

5.6.1 Number of cross-border CIT transports

The estimates of the long-term and short-term potential market for professional cross-border money transport measured in terms of the number of cross-border CIT transport is presented in Table 5.6 below.

Table 5.6 Estimate of the number of long-term and short-term CIT cross-border transports

Border region		Long-term Transports	Banks	Retails	Cash Centres	Likelihood	Short-term Transports
		(pr day)					(pr day)
Map 1: Netherlands/Germany-A		9	D	B	B	54%	5
Map 2: Netherlands/Germany-B		12	C	A	A	76%	9
Map 3: Belgium/Netherlands		12	A	A	A	91%	11
Map 4: BE/DE/NL	DE - NL	6	A	A	A	91%	6
	BE - NL	4					3
	BE - DE	6					6
Map 5: Belgium/France		9	A	A	A	91%	8
Map 6: LU/FR/DE/BE	BE - FR	1	A	A	A	91%	1
	LU - DE	17					15
	LU - BE	9					8
	LU - FR	8					7
	DE - FR	16					15
Map 7: France/Germany		17	D	B	A	61%	10
Map 8: Austria/Germany-A		16	A	A	B	84%	13
Map 9: Austria/Germany-B		10	A	A	A	91%	9
Map 10: Austria/Slovakia		4	B	C	A	69%	2
Map 11: Austria/Slovenia		4	C	D	B	46%	2
Map 12: Austria/Slovenia/Italy	AT - SI	2	C	D	B	46%	1
	SI - IT	8					4
	IT - AT	2					1
Map 13: Italy/France-A		9	E	E	D	9%	1
Map 14: Italy/France-B		11	D	C	C	39%	4
Map 15: France/Spain-A		4	D	C	C	39%	1
Map 16: France/Spain-B		5	C	C	B	54%	3
Map 17: Spain/Portugal-A		10	B	B	A	76%	8
Map 18: Spain/Portugal-B		2	B	D	B	54%	1
Map 19: Spain/Portugal-C		1	C	D	C	39%	0
Total pr day		212					155
Total pr year (365 days)		77 380					56 575

Source: Trans-Tool, ESTA, National Central Banks and Ramboll.

A CIT cross-border transport is defined as CIT vehicle crossing the border on its outbound journey and again on its homebound journey. In the long-term, it is evident that the highest number of CIT cross-border transports is concentrated on the borders between Germany, Austria, The Netherlands, Belgium, Luxembourg and France, while the number of transports is relatively smaller on the borders of Austria, Italy, Slovenia, Slovakia, France, Spain and Portugal. In the first group of countries there is an estimated 152 CIT cross-border transports pr day out of a total of 212, which corresponds to around 70 percent of all the estimated cross-border transports. In the second group of countries there is an estimated 60 CIT cross-border transport pr day, which corresponds to the remaining 30 percent of all the estimated cross-border transports. On the basis of 365 days pr. year, the estimated annual number of CIT cross-border transports is 77 380[13].

The short-term estimate equals the long-term corrected for the locations and operational radiuses of cash centres and national central bank branches, the cross-border location and density of commercial bank branches and large retailers. On the basis of the mapping exercise the reducing impact in the short-term of these factors have been assessed and given grades. The grades will limit the likelihood that the long-term estimate of the number of cross-border CIT transports also will prevail in the short-term, cf. Table 5.7 below.

Table 5.7 Grades for banks, retailers and cash centres

A	B	C	D	E
3,0%	10,5%	18,0%	25,5%	33,0%

The factors are graded from A to E where A is the highest potential and E the lowest. This means that if a map is graded with three A's the combined likelihood will become 91% (100% - 3x3%) etc. The value of the grades are assign to the variables so that a map with only E's (3xE) have a likelihood of cross-border transportation that equals 0% and if only A's the likelihood will be 91%.

The short-term assessments are calculated by multiplying the long-term assessments with the likelihood for CIT cross-border transport in each individual map. It is assumed that if there is a high potential for cross-border transportation (3xA's) the amount of CIT transports will not equal the long-term potential as there might be some other adjustments in the short run not accounted for.

In the short-term, the main part of the cross-border CIT-transport is still concentrated on the borders between Germany, Austria, The Netherlands, Belgium, Luxembourg and France. Actually, in the short-term these countries constitute 80 percent of the total estimated CIT cross-border transports as opposed to 70 percent in the long-term. This corresponds to 126 transports out of a total of 155. For the second group of countries that consists of Austria, Italy, Slovenia, Slovakia, France, Spain and Portugal the estimated number of cross-border CIT-transports is 29, which corresponds to 20 percent of the total estimated transports. On an annual basis, the 155 daily CIT cross-border transports correspond to 56 575 pr. year.

5.6.2 Share of euro ordered transported by cross-border CIT transports

The diversion of the euro ordered to CIT companies in country A to CIT companies in country B from customers in country A and vice versa is estimated in step 3 of the traffic approach, cf. section 5.2.3 and 5.4. On the basis of this approach the long-term and short-term estimates of the euro transported by cross-border money transports can be carried out, cf. Table 5.8 below.

[13] Step 1 of the traffic approach, where the CIT transport frequency is estimated, is based on annual traffic and transport data. When the estimated number of daily CIT cross-border transports are summed into annual number of transports it should therefore be done on the basis of 365 days in contrast to e.g. 220 days, which is the standard number of working days per years.

Table 5.8 Estimate of the euro ordered transported by CIT cross-border transports - long-term and short-term (million euro/percent of total euro ordered)

Country	NL	BE	LU	FR	DE	AT	SK	IT	SI	ES	PT	**Total**
Long-term	4 231	2 618	-	3 356	11 172	6 334	-	1 687	-	1 123	357	**30 879**
	6.51%	5.79%	-	1.88%	2.17%	9.36%	-	0.97%	-	0.98%	1.51%	**2.61%**
Short-term	3 169	2 380	-	2 129	8 830	4 743	-	548	-	683	249	**22 732**
	4.87%	5.26%	-	1.19%	1.71%	7.01%	-	0.31%	-	0.60%	1.06%	**1.92%**
Total	65 022	45 234	-	178 366	515 900	67 648	-	174 238		114 058	23 630	**1 184 096**

Source: ECB, NCBs, ESTA and Ramboll

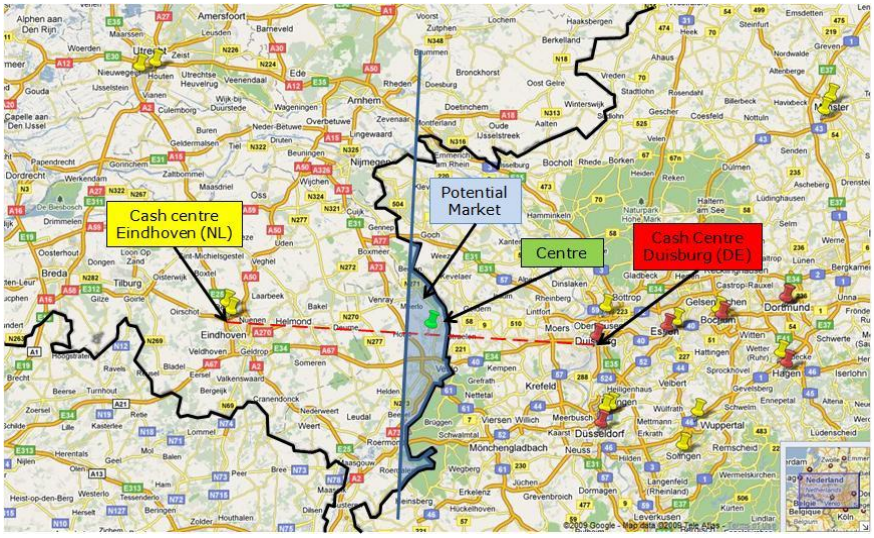
It has not been possible to collect sufficient information in order to estimate the share of euro transported by cross-border CIT transports for Luxembourg, Slovakia and Slovenia[14]. Apart from these countries the total amount of euro ordered that will be transported by cross-border CIT transports is estimated to around 30.9 billion euro in the long-term. This corresponds to around 2.6 percent of total euro ordered in the targeted countries. The highest shares of euro ordered that will be diverted to cross-border transport are estimated to be in The Netherlands, Belgium and Austria, where cross-border shares of euro ordered are 5.9 - 9.4 percent, while the lowest shares are in Italy, Spain and Portugal. In the short-term, the long-term pattern across countries remains the same, but the total share of euro transported by cross-border CIT transport is reduced from 2.6 to 1.9 percent.

5.6.3 The savings in travel distance resulting from cross-border CIT transports

An estimation of the potential savings in travel distance should ideally cover all possible destinations in an area where the facilitation of cross-border CIT transport will imply a reduction in driving distance when using a cash centre on the other side of the border compared to using the domestic the cash centre, cf. the blue area labelled "potential market" in the example below.

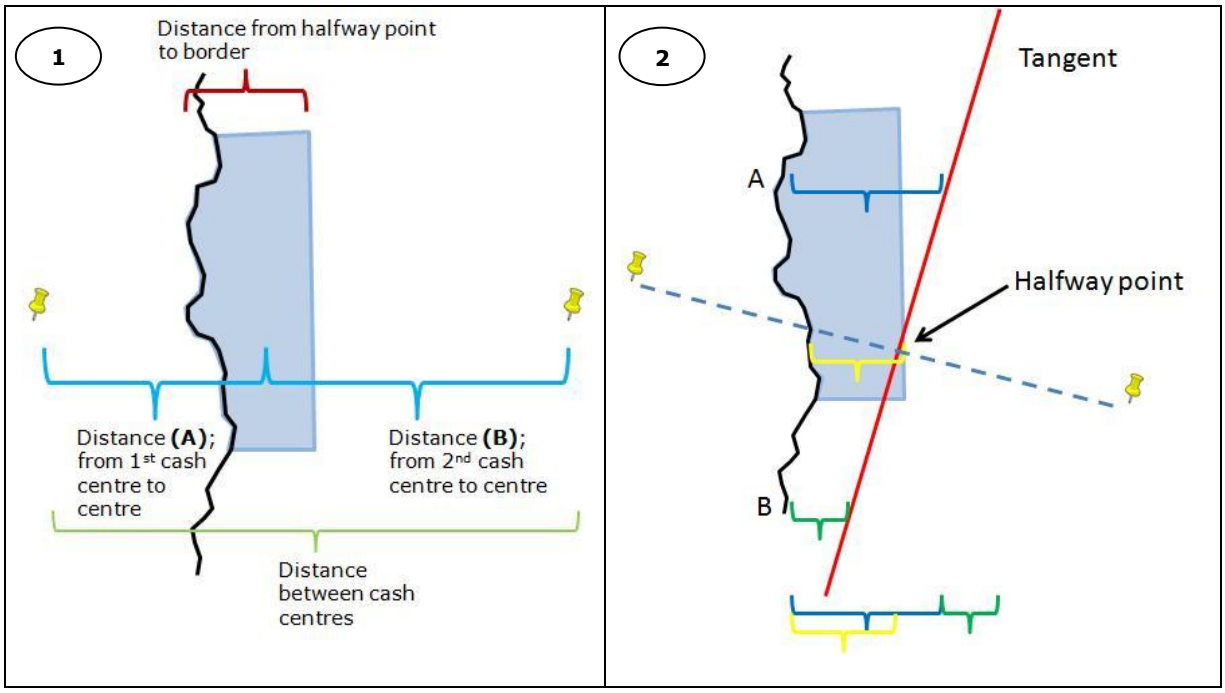
[14] For Luxembourg information on euro ordered is missing, for Slovenia information on CIT transport work is missing and for Slovakia information on CIT vehicles are missing.

Example A:
In this illustration we have a cash centre in Eindhoven, the Netherlands and a cash centre in Duisburg, Germany (hidden behind the red pin indicating the NCB branch).
The blue area indicates the potential market for cross-border transport measured in terms of the part of Holland, where Dutch CIT customers have a shorter distance to the cash centre located on the German side of the border (Cash centre Duisburg) than the cash centre located on the Dutch side of the border (Cash centre Eindhoven) and where the Dutch costumers are located within the action radius of the German cash centre. The blue straight line defining the blue area indicates the place where there is an equivalent distance to the two cash centres in question. The green push-pin in the blue area indicates the centre of the area that is assumed to be the average distance to the potential market.



Ideally, all potential customers located in the potential market zone should be taken into consideration and their individual savings in travel distance determined. This is however not possible within the scope of this study and a more general approach needs to be applied. Such a general approach should aim at assessing the most precise average of the savings in distance that will accrue from cross-border CIT transport within the potential market zone.

A possible way of assessing such an average is to look at the distances between two cash centres located on each side of the border. Between these two cash centres a halfway point can be defined and on the basis of this halfway point, the distance from the halfway point to the border, cf. red horizontal brase in figure 1 below.



The red horizontal brace frames the areas of interest where bank branches and retailers are closer to a cash centre on the opposite side of the border. The distance from the cash centre to the centre of the area of interest area is assumed to be the average distance to locations in the area, and the difference between the two cash centres and the centre are the distance saved:

Equation a: $$Possible\ savings = Distance(A) - Distance(B)$$

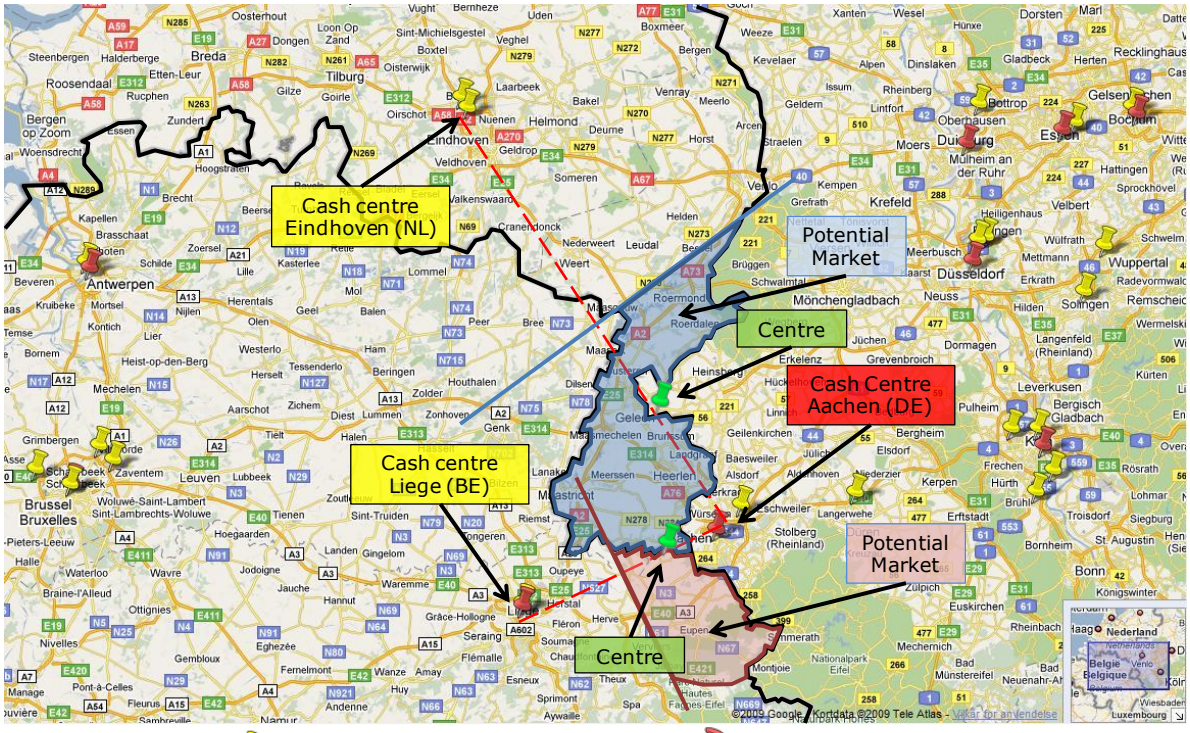
The reasoning of this approach is based on the tangent between the two bobbles cf. figure 2 above. The idea is that the tangent is the line where the two cash centres have an equivalent distance to travel and the average distance from the tangent to the border can therefore be calculated by:

Equation b: $$\frac{\int_A^B Tangent\ (AB)}{|AB|} = Average\ distance\ to\ border$$

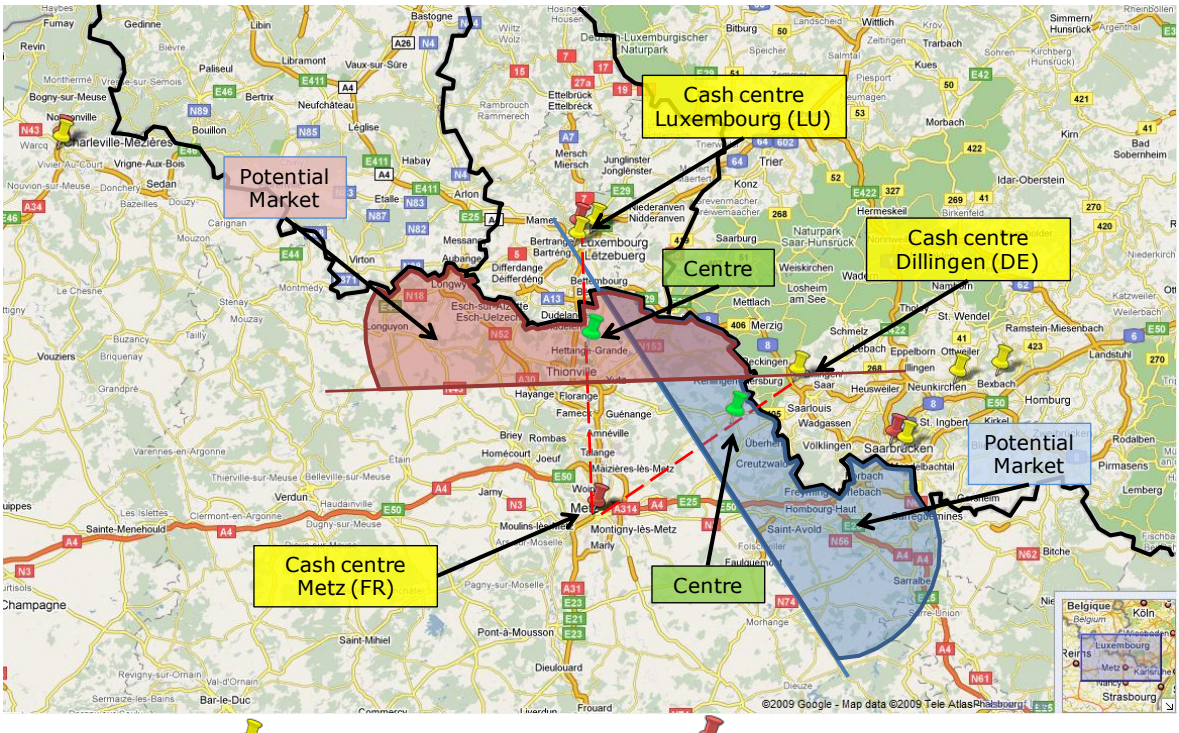
This is the integral between point A and B divided by the distance between point A and B under the assumption that the distance between point A and B is calculated as a linear function. It is a condition that the halfway point between the two cash centres is the exact middle of the tangent. This condition can be met by considering point A and B, where the two points have an equivalent distance to the halfway point. The distance from the halfway point to the border is then equal to the average distance to the border calculated by equation b.

The practical application of this approach is further illustrated in Map 5.3 - Map 5.6 below.

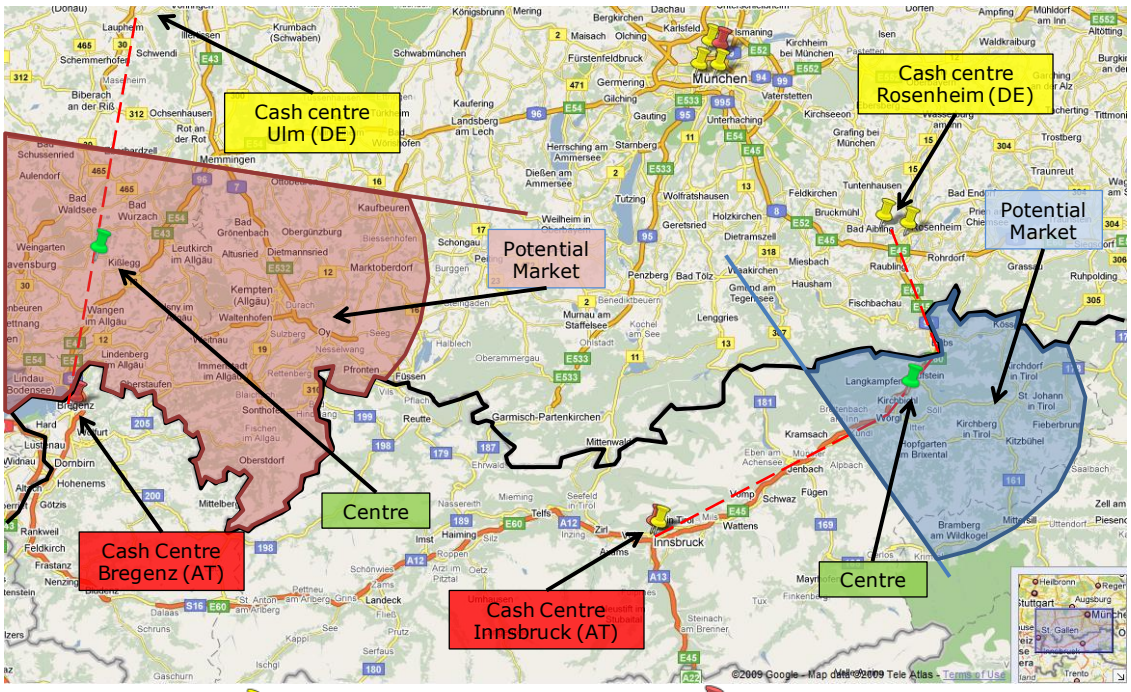
Map 5.3 Example 1: Distance savings in map 4 - Belgium/Germany /The Netherlands



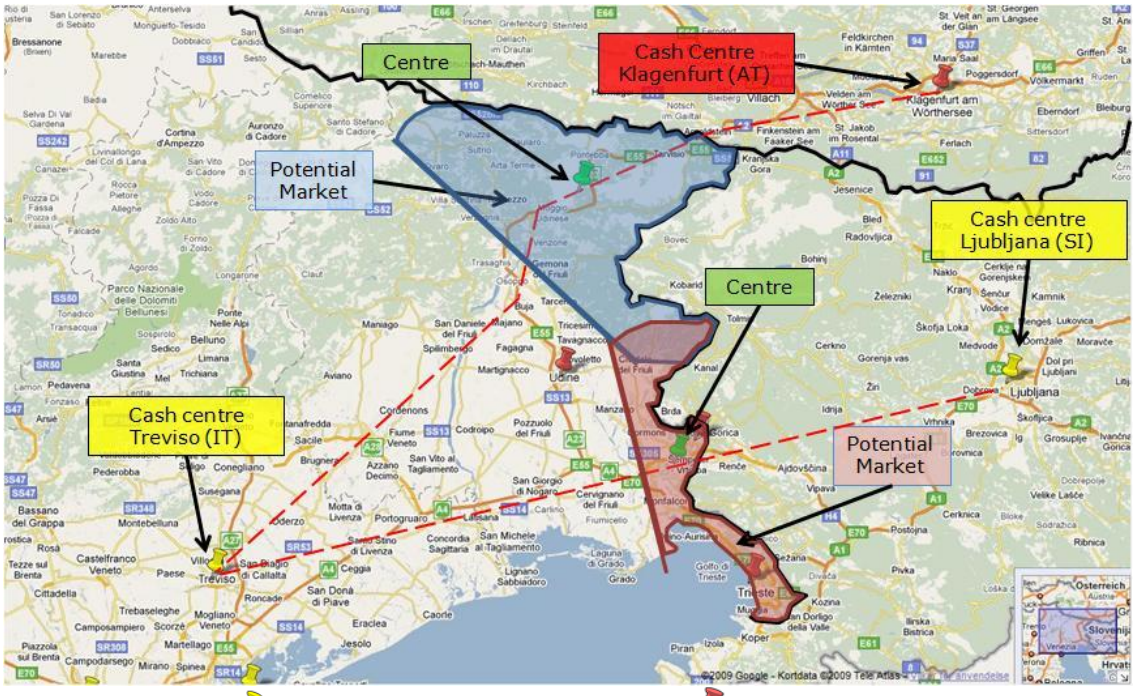
Map 5.4 Example 2: Distance savings in map 6: Belgium/Luxembourg/France



Map 5.5 Example 3: Distance savings in map 8 – Austria/Germany A



Map 5.6 Example 4: Distance savings in map 12 – Austria/Slovenia/Italy



It should be emphasised that the estimated savings in distance travelled assuming that all current border obstacles are lifted will accrue regardless of whether commercial banks or retailers have business activities on both sides of the border. It should further be emphasised that the long-term estimation of the savings in travel distance is based on the current allocation of the existing cash centres and not on a possible future allocation of cash centres.

On the basis of the described approach and its preconditions, it is possible to estimate the savings in travel distance for each of the 19 examined border areas. It should be emphasised that

this is a simplified and theoretical exercise, which nevertheless could provide a rough indication of the magnitude of these savings.

The estimated savings in travel distance vary significantly. Thus, while the average savings pr either outgoing or ingoing trip is 19 km, the standard deviation is 13.9 km.

The estimated savings pr trip can be aggregated into total savings pr. day and pr. year by multiplying with the estimated number of cross-border CIT transports, cf. Table 5.6 above. The results show that cross-border CIT transports can save around 2.8 million km pr year in the long-term and 2.0 million km pr year in the short-term or 0.8 and 0.6 percent, respectively, out of the total kilometres that CIT companies travel pr year, cf. Table 5.9 below[15].

Table 5.9 Estimated total saving in travel distance due to cross-border CIT transports

Border Region	Long-term CIT transports pr day	Short-term CIT transports pr day	Average distance savings pr transport	Long-term		Short-term	
				Average distance savings	Average distance savings	Average distance savings	Average distance savings
	(transports/ day)	(transports/ day)	(km/ transport)	(km/day)	(km/year)	(km/day)	(km/year)
Map 1: NL/DE – A	9	5	53	452	162 575	242	86 978
Map 2: NL/DE – B	12	9	14	164	58 864	124	44 736
Map 3: BE/NL	12	11	24	288	103 680	275	99 066
Map 4: BE/DE/NL	17	15	51	836	300 879	761	273 800
Map 5: BE/FR	9	8	22	188	67 504	171	61 428
Map 6: LU/FR/DE/BE	51	46	28	1 419	510 821	1 291	464 847
Map 7: FR/DE	17	10	8	134	48 174	82	29 386
Map 8: AU/DE – A	16	13	69	1 072	385 905	895	322 231
Map 9: AU/DE-B	10	9	37	372	134 058	339	121 992
Map 10: AU/SI	4	2	60	210	75 600	144	51 786
Map 11: AU/SI	4	2	30	134	48 060	61	22 108
Map 12: AU/SI/IT	12	5	62	724	260 582	333	119 868
Map 13: IT/FR - A	9	1	23	196	70 678	17	6 008
Map 14: IT/FR - B	11	4	26	284	102 155	109	39 330
Map 15: FR/ES - A	4	1	108	408	146 704	157	56 481
Map 16: FR/ES - B	5	3	48	253	91 182	136	48 782
Map 17: ES/PT - A	10	8	34	355	127 792	270	97 122
Map 18: ES/PT - B	2	1	78	182	65 341	97	34 957
Map 19: ES/PT - C	1	0	4	3	1 199	1	462
Total	212	155	779	7 672	2 761 752	5 504	1 981 368
				0.78%	0.78%	0.56%	0.56%

The associated savings in fuel and CO2 emissions can be roughly estimated by applying some key characteristics and assumptions regarding a typical CIT vehicle:

- Mercedes Sprinter 315 or 316 is a typical model used for CIT-transports in Europe.
- Fuel consumption for a fully loaded Mercedes Sprinter (3.5 tonnes) is around 1.2-1.3 litres of diesel/10 km.

[15] The calculations have been made on the basis of unrounded figures for transport/day. Consequently, they do not add up to the sums of total.

- For a fully armoured Mercedes Sprinter fuel consumption increases with 20-25 percent.
- Fuel consumption therefore varies within a range of 1.2-1.6 litres depending on the level of armouring. A mid-range estimate could then be 1.4 litres of diesel/10 km.
- The CO2 emissions of a fully armoured Mercedes Sprinter is 0,31 kg/km

On the basis of the above information and estimations it is possible to assess the total savings in fuel and CO2 emissions that accrues from cross-border CIT transports, cf. Table 5.10 below. In the long-term the annual savings in fuel are 0.4 million litres of diesel, while the savings in CO2 emissions are 800 tonnes and in the short-term the corresponding savings are 0.3 million litres of diesel and 600 tonnes CO2.

Table 5.10 Estimated total saving in fuel and CO2 emissions from cross-border CIT transports

Border region	Diesel consumption				CO2 emission			
	Long-term		Short-term		Long-term		Short-term	
	Savings pr day	Savings pr year	Savings pr day	Savings pr year	Savings pr day	Savings pr year	Savings pr day	Savings pr year
	(litre/day)	(litre/year)	(litre/day)	(litre/year)	(kg/day)	(kg/year)	(kg/day)	(kg/year)
Map 1: NL/DE - A	63	22 761	34	12 177	138	49 789	74	26 637
Map 2: NL/DE - B	23	8 241	17	6 263	50	18 027	38	13 700
Map 3: BE/NL	40	14 515	39	13 869	88	31 752	84	30 339
Map 4: BE/DE/NL	117	42 123	106	38 332	256	92 144	233	83 851
Map 5: BE/FR	26	9 451	24	8 600	57	20 673	52	18 812
Map 6: LU/FR/DE/BE	199	71 515	181	65 079	435	156 439	395	142 359
Map 7: FR/DE	19	6 744	11	4 114	41	14 753	25	8 999
Map 8: AU/DE - A	150	54 027	125	45 112	328	118 183	274	98 683
Map 9: AU/DE-B	52	18 768	47	17 079	114	41 055	104	37 360
Map 10: AU/SI	29	10 584	20	7 250	64	23 153	44	15 859
Map 11: AU/SI	19	6 728	9	3 095	41	14 718	19	6 770
Map 12: AU/SI/IY	101	36 482	47	16 782	222	79 803	102	36 710
Map 13: IT/FR - A	27	9 895	2	841	60	21 645	5	1 840
Map 14: IT/FR - B	40	14 302	15	5 506	87	31 285	33	12 045
Map 15: FR/ES - A	57	20 539	22	7 907	125	44 928	48	17 297
Map 16: FR/ES - B	35	12 766	19	6 830	78	27 925	41	14 940
Map 17: ES/PT - A	50	17 891	38	13 597	109	39 136	83	29 744
Map 18: ES/PT - B	25	9 148	14	4 894	56	20 011	30	10 706
Map 19: ES/PT - C	0	168	0	65	1	367	0	141
Total	1 074	386 645	771	277 391	2 349	845 787	1 686	606 794

ANNEX A
Demand player perceptions

Summary

The qualitative assessment of the demand side of the market is based on answers received from the members of the EPC cash working group. It could have been interesting to combine different points of view and not to rely solely on answers from the bank sector. However, it was not possible to obtain information from other CIT customers. In an attempt to compensate other information was collected on a less systematic basis during discussions with other relevant parties hereunder not least the national central banks. The outcome of these discussions were however too thin and incoherent in order to be taken into account in the summary that follows, which only reflects the answers from the bank sector.

According to the interviewed credit institutions, the current market for cross-border transport of euro-cash remains limited throughout the euro zone. Different legal requirements are usually mentioned as the main reason for this. There are however border regions where legal obstacles are relatively less constraining and other factors of greater importance. For instance, between Luxembourg and Belgium, it is mainly higher prices in Luxembourg which prevent cross-border transports to develop further and supply the southern Belgium region. The legislation in both these countries is said to enable cross-border transportation of cash. In Austria, both legal requirements (the legislation is said to be not so detailed in Austria) and market prices (it seems that CIT services are lower in Austria compared to neighbouring countries) stimulate cross-border transport. It is actually between Austria and Slovenia that the biggest values for cross-border cash transports were reported (1.5 billion euro/year ordered from customers in Slovenia).

However, limited cross-border transport also occurs in other countries, depending on specific needs. It concerns coins mainly, since this is where the domestic market seems to fail in meeting the demand (such as between Spain and Portugal, The Netherlands and Belgium etc.)

Lower costs for cash handling are the main advantage, which credit institutions are expecting from facilitating cross-border transport of euro-cash. This should come as a consequence of lower current market prices on the other side of the border, smaller distances, increased competition on domestic markets, single contracts to service locations on both sides of the border, integrated cash management throughout countries, etc. In Luxembourg, for instance, where prices seem to be high, the EPC member estimates that about 1/3 of the domestic demand could be supplied cross-border. Alternative options to cash transport and supply were also mentioned by some of the EPC members, in case of shortages. This already happened in the past, such as in Italy for instance.

The demand side expects cross-border transport to increase significantly, if all regulatory obstacles are lifted. This is all the more the case when credit institutions have branches on both sides of the border. There are however regions, where the demand is seen as being limited, mainly due to either no cross-border settlement (e.g. the Spanish bank BBVA has no branches in France for instance) or little economic activities (e.g. Italian northern regions near the borders).

ANNEX B
Data collection

This annex briefly describes the data collection strategy, activities and achievements.

Key challenges
Following the expectations of the terms of reference, the initial objectives set for the data collection activities were particularly ambitious and the degree of expected detail was high. Access to data, however, progressively proved to be one of the main challenges of the study. Main reasons are:

- National CIT markets highly differ from one country to another: cash-in-transit operations are highly constrained by national regulations, the cash cycles depends on the history of the national central banks; therefore, it proved to be extremely difficult to carry out systematic data collection activities in 11 different countries, within a fixed budget and time constraints.
- The CIT markets are deemed to be highly competitive: While the number of CIT companies is limited in most countries, CIT companies still operate in a harsh market environment, facing strong clients (credit institutions, retailers) and having little possibility to differentiate themselves from competitors, but through lower prices. Therefore, they would rather retain as much information as possible about their activities.
- Security is an issue for all market players: In order to secure cash transportation, CIT companies, credit institutions and other professional cash handlers are hesitant to provide too detailed information of cash circulation. Anything but broad data at national level proved to be extremely difficult to obtain.

Therefore, the data collection strategy had to be constantly revised during the study in order to accommodate these constraints and deliver satisfying result. The methodology, as described in Chapter 5 fully addresses these limitations.

Geographical scope
The scope of the study was limited to euro-area Member States. Those euro-area countries that have no land borders with other euro-area Member States, i.e. Greece, Cyprus, Finland, Ireland and Malta, were excluded.

It was initially foreseen to focus on the following border regions:

- Belgium/the Netherlands/Luxembourg/France/Germany
- Austria/Slovak Republic.

In order to compensate a lack of detailed information at regional level, it was decided to embark other regions in the mainstream of data collection activities. Therefore existing or potential market for cross-border cash transport could be examined in the following border regions:

- Italy/France
- Germany/Austria
- Austria/Italy
- Austria/Slovenia
- Slovenia/Italy
- Spain/France
- Spain/Portugal

In total, 11 countries and 19 strategic border regions were included in the scope of the study.

Data collection activities
In each of the following sections, we briefly describe the strategy and activities for collecting data.

Desk research
The desk researches was aimed at analysing the documents received from the European Commission as well as identify additional documents and data that could be useful to the study.

The documents handed over by the European commission include, mentioning the most important only:

- Legislative fiches for the euro area.
- Questionnaire and synoptic table for the euro area on the current situation in Member States regarding CIT activities.
- Attack statistics (ESTA data, confidential).

Additional documents and data were collected during the research:

- The ECB blue book 2007 on payment and securities settlement systems in the European Union: this document includes limited information on the cash cycles
- The European market survey on the cash-in-transit industry (summary report of the 2009 study prepared by BenAlpin Limited): this report includes aggregated data on attacks against vehicles.

Some research was also carried out in the internet. An extensive screening of the websites of CIT companies, NCBs and the ECB provided limited information on the CIT market. However, it was possible to collect:

- ECB statistics on the use of cash (ECB website).
- Addresses of the NCB local branches (NCBs websites).
- Various economic data on NUTS 3 level from Eurostat.

Google maps also proved to be a powerful and useful tool to locate CoB (commercial bank) cash centres, commercial bank branches, ATMs (Automated Teller Machines/cash dispensers), retailers and CIT cash centre (addresses and geographic information system (GIS) code). This complemented to high extent the information provided by the different parties in their answers to data requests. A significant part of the desk research consisted in this mapping exercise.

Finally, the traffic approach, cf. chapter 5 above, required collecting comprehensive data on traffic and transport volumes in the targeted countries. This was done using the traffic and transport model Trans-tool[16] as well as information from national road directorates and other sources.

[16] Trans-Tool is administered by the EC research institute in Sevilla and is made by the Department of Transport at the Technical University of Denmark and Rapidis - a transport consultancy. The map contains the overall road network and is rather rough digitalised. In return it contains quite a number of traffic counts and also model estimations implying counts or modelled traffic for all edges. The traffic is measured in terms of cars and trucks and handles different time periods like rush hour, holidays, etc.

CIT Companies
CIT companies potentially have access to all the information needed for a thorough analysis of the current CIT market and the potential cross-border market for professional transport of euro cash, including CIT operators, vehicles, cash cycle, risk profiles, and cross-border traffic. Therefore, CIT companies were expected to be a primary source of information.

However, preliminary interviews showed that, while ESTA could play a facilitating role, CIT companies were not in a position to provide the requested information.

Further data collection activities confirmed this assessment formulated in the inception report:

- All CIT companies stated that they would not be able to provide information as requested and no answers to the questionnaire were actually received from the contact persons at European level[17].
- It proved difficult to take direct contact with the national/regional branches of CIT companies

Following a meeting with the ESTA working group in Brussels, CIT companies finally agreed to provide the following information:

- Approximate market shares.
- Total (aggregated) number of kilometres driven by CIT vehicles in each country.

Side information on the functioning of the CIT market was also received from ESTA, who played a supportive role all along the process.

In the end and despite efforts from all parties, the data collected from CIT companies did not reach expectations. This has a strong impact on the strategy followed, both in terms of data collection and methodology.

Central Banks
During the inception phase of this study, it appeared that the potential contribution of the National Central Banks in the gathering of data was bigger than expected.

Indeed, due to a close monitoring of the cash cycle, NCBs possess a lot of information on the CIT market (except purely commercial issues).

Consequently, it was decided to rely on NCBs for important information on professional money transport and CIT markets. NCBs must be considered the most neutral market player of all involved and their assessments and statements therefore carry the relatively highest credibility.

Data collection activities with regard to NCBs still had to adapt to limitations:

- In close cooperation with the ECB, the NCBs decided not to reveal information on the local branches level, due to security issue.

[17] This questionnaire included questions on: location of cash centres; turnover; operating costs; main clients; transported values and volumes; time and distance driven; current and potential cross border activities. The first round was focusing on data national level. A second was foreseen at regional and cash centres levels, but the questionnaire was never released.

- The NCBs do not focus on cash transportation as such, but more on supplying the market and ensuring the integrity and preservation of the euro banknotes (recycling); therefore, they do not as such have a full overview of the cash circulation.
- The cash cycles still highly differ from one country to another in the euro-zone. The ECB Banknote Recycling Framework[18] is not fully implemented in all countries; there still are inconsistencies both in the implementation of the framework, and the data that is collected from credit institutions and other professional cash handlers under the Framework for banknote recycling.

All Central Banks proved to be very cooperative. All but one filled in and returned the questionnaire that was submitted to them. Follow-up phone interviews were conducted with most NCBs, plus a large number of follow up emails.

Collected data finally includes:

- Value of cash issued and received by the NCBs, and recycled by commercial parties
- Location of local branches and CIT cash centres
- Description of the cash cycles

The ECB played a facilitating and coordination role in this process that proved to be decisive. In addition to this, ECB provided information on the value of cash in circulation in the euro-zone.

Credit institutions and retailers
Data collection activities on the demand side primarily focused on assessing the expected behaviour of credit institutions and retailers if obstacles to CIT cross border transport are lifted.

Due to the high number of players on the demand side, it was decided to channel the data collection activities through the European Payment Council (credit institutions) and EuroCommerce (major retailers). Both European organisations answered to preliminary questionnaires, and facilitated access to their members.

This activity delivered contrasting results. While only one answer was received from retailers, credit institutions proved to be cooperative. All national representatives of the European Payment Council (EPC) cash working groups were contacted by email. Ten of the members replied to the questionnaire, and responded to follow up questions through face to face or phone interviews.

The EPC was highly supportive in this activity.

Most valuable collected information covers:

- Current cross-border market and obstacles
- Expected cross border transport if obstacles are lifted

[18] The possibility of re-issuing euro banknotes enables credit institutions and other professional cash handlers to perform their role in the currency supply in a more effective and more cost-efficient manner. To ensure the integrity and preservation of the euro banknotes, the ECB established the European Banknote Recycling Framework. The "Framework" ensures that credit institutions and other professional cash handlers re-issue euro banknotes to their customers only if these banknotes have been checked, both on their fitness and authenticity. The NCBs were required to implement the Framework at national level by the end of 2006. See also:
http://www.ecb.eu/euro/cashhand/recycling/html/index.en.html

- Expected benefits and conditions to be fulfilled

More quantitative information was requested regarding the typical value and frequency of cash deliveries, expected value of cross border transport etc. However, it was not possible to collect data for all countries and the data actually collected is only sparsely comparable and applicable.

Consequently, most of the data collected from the demand side was used solely for a qualitative assessment of the potential market for professional cross-border transport of euro-cash. Facing difficulties in collecting information from CIT companies, CIT customers were also considered as back-up options for retrieving information on the national CIT markets, including on the supply side. Indeed, contracts with CIT companies are concluded after invitations to tender are submitted and contracts harshly negotiated. During this process, CIT companies are asked to be as much transparent as possible on how prices are set, and on the capacities of CIT companies.

For this reason, a questionnaire was sent to EPC members regarding the cash circulating in each steps of the cash cycle. However, no answer was received, despite the facilitating role of the EPC.

ANNEX C
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- National Central Banks
- Binnekamp Jan, Head of Cash policy Department, De Nederlandsche Bank, the Netherlands
- Brondel Michel, Deputy Director to Cash Cycle and Issuance Directorate, Banque De France, France
- Certyn Luc, Data Security Analyst, National Bank of Belgium, Belgium
- De Nys Laurent, Head of Division Circulation of banknotes and coins, National Bank of Belgium, Belgium
- Geschwindt Christian, Banque Centrale du Luxembourg, Luxembourg
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- Serrano-Ferreira Claudia, Banco de Portugal, Portugal
- Slizik Andrej, Head of Cash Unit, Národná banka Slovenska, Slovakia
- Tillner Elisabeth, Deutsche Bundesbank, Germany

Commercial Banks[19]

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- Brečko Vlasta, Executive Director Support of Commercial Activities, Nova Kreditna banka Maribor (Nova KBM d.d.), Slovenia
- Dijkstra Rits, Manager - ING Nederland/OPS&IT Banking NL/SE Cash&ATM Account management, ING, Netherlands
- Eberspacher Enrico, Director - ABI Anticrime Security Department, Assiociazione Bancaria Italiana, Italy
- Esteva Marie-Francoise, Project manager - Systems and Means of Payment, FBF – Federation Bancaire Francaise, France
- Fischer Christian, Trainee solicitor, Deutscher Sparkassen- und Giroverband (German Savings Bank Association, DSGV), Germany
- Garcia Patrice, Deputy of the Cash Asset Department, Banque et Caisse d'Epargne de l'Etat (BCEE), Luxembourg
- Grünberger Karl, Executive Board Member, Raiffeisen Zentralbank Österreich AG (RZB), Austria
- Janssens Eric, Head of Physical Payments Belgium, Fortis Bank, Belgium
- Larrañaga Carlos, Euro & FX Central Cash Manager, Banco Bilbao Vizcaya Argentaria (BBVA), Spain

[19] National representatives for European Payment Council Cash Working Group (apart from Pahor Branko from Slovenia)

- Olschok Harald Dr, Managing Director, Bundesvereinigung Deutscher Geld- und Wertdienste (BDGW), Germany
- Pahor Branko, General Manager of Cash Services, Nova Ljubljanska banka (NLB d.d.), Slovenia

Retailers

- Gregoire Cecile, Senior Advisor on Payment Systems, EuroCommerce, Belgium
- Scheiwe S., Head of Cash Management, METRO AG, Germany
- Just Rudolf, Tengelmann (EuroCommerce), Belgium

CIT and other

- Grünberger Karl, Member of the Board of Directors, Geld Service Austria, Austria
- Högman Kenneth, Executive Vice President, Business Development, Loomis AB, Sweden
- Lebot Mr., ESTA's advisor, European Security Transport Association (ESTA), Belgium
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