

7 April 2006

Review of Boston Consulting Group  
Analysis of Entry Barriers to National  
Postal Markets Using 'Level Playing  
Field' Indicator

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## 1. Introduction

In a report undertaken for the Dutch national postal operator TPG dated December 21<sup>st</sup> 2005 the Boston Consulting Group (BCG) present an analysis of the degree of liberalisation in the addressed mail markets in three countries, The Netherlands, Germany and the United Kingdom.<sup>1</sup> Central to this analysis is the construction and estimation of a level playing field (LPF) index. This index is claimed to measure the net present value (NPV) of profits available to a potential investor entering the markets for addressed mail in these three countries on January 1, 2006 relative to the NPV that the investor would earn in an ideal “level playing scenario”, i.e. a fully liberalised market without regulatory obstacles to entry.

The apparent result of BCG’s (2005) study is that investment prospects in the addressed mail market over the next ten years are likely to be significantly better in The Netherlands than in either Germany or the UK. This difference in market entry conditions in the three countries would however be reduced if liberalisation progressed at a slower pace in the Netherlands than scheduled.<sup>2</sup> We understand that this result will feed into the debate on the timing of liberalisation measures to be taken by the Dutch postal regulator.

NERA has been commissioned to review BCG’s (2005) analysis. Our report is structured as follows:

- In Section 2 we explain the methodology that BCG have devised to calculate the LPF index;
- In Section 3 we set out our main criticism of BCG’s calculation of the LPF index for the Dutch, German and UK postal markets and the political implications they derive from it;
- Section 4 presents our conclusions.

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<sup>1</sup> The Boston Consulting Group (2005), *Level Playing Field Indicator for Addressed Mail Markets in the Netherlands, Germany and the UK*, Final Presentation.

<sup>2</sup> See slide 20.

## 2. BCG's Level Playing Field Index for the Dutch, German and UK Addressed Mail Markets

Indices have been used in a number of studies to assess the extent of market liberalisation.<sup>3</sup> BCG (2005) uses a Level Playing Field (LPF) index to assess the extent of liberalisation of the Dutch, German and UK addressed mail markets. This index is meant to compare the net present value of profits likely to accrue to a company entering the addressed mail market in one of these countries over 10 years beginning on 1 January 2006 with the net present value of profits that would accrue to an investor in an "ideal level playing field scenario", with no regulatory obstacles to entry (though other obstacles may exist). Formally, the LPF index is defined as follows:

$$LPF\ Index = (NPV\ Predicted\ Entry\ Scenario) / (NPV\ Ideal\ Level\ Playing\ Field\ Scenario)$$

An LPF Index of 100 per cent would indicate a perfect level playing field between incumbents and an entrant. A lower LPF Index implies greater obstacles to market entry. Several aspects of this index require further explanation.

### *The "ideal level playing field scenario"*

BCG estimates profits to the entrant in the "ideal level playing field scenario" with no regulatory obstacles to entry, on the basis of data on the size of the addressed mail market in the three countries and a set of simple assumptions. Assumptions vary for the start-up and the expansion phase of market entry:

- The expected start-up phase lasts 3 years. The new entrant uses the incumbent's network to supply large bulk-mail customers. BCG assumes volume growth to follow an 'S-curve' with a high growth in the first 3 years (from 1 per cent market share in year 1 to 3.8 per cent in year 3). Earnings before Interest and Tax (EBIT) are assumed to rise from -28 per cent to 4 per cent return on sales (RoS)
- The expected expansion phase covers 7 years. In this period, the entrant gradually expands to the entire business market with its own end-to-end network. BCG assumes that volume growth is assumed to level off to 2 per cent, resulting in a 10 per cent share of the accessible market after 10 years. EBIT is taken to increase from 3 per cent to 10 per cent RoS from year 4 to year 10 (based on a 'scale curve' which shows how unit costs are expected to fall as output grows).

### *Deviations from the "ideal level playing scenarios"*

Looking at BCG's formula for calculating the LPF index (cf. above), one might suppose that BCG would estimate the net present value of the profits likely to accrue to an entrant given any regulatory obstacles to market entry and insert it into the formula. But the approach actually adopted by BCG is more qualitative in nature.

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<sup>3</sup> See e.g. BvDP (2001), *The BvDP Liberalisation Index*, Outline of the 2001 Edition; IBM (2004), *Rail Liberalisation Index 2004*, accessible via [www.bahn.de/presse](http://www.bahn.de/presse), Oxera (2003), *Energy Market Competition in the EU and G7*, A Report for the UK Department of Trade and Industry.

BCG conducted interviews with “different market participants including regulators in the three countries”<sup>4</sup> and gathered evidence on a range of potential regulatory obstacles to postal market entry in the three countries.

BCG considers five kinds of regulatory factors that may impinge on LPF indices:

- market liberalisation;
- financial advantages to the incumbent or the entrant (i.e. VAT exemptions for incumbents, less than complete responsibility for pension funds for incumbents, less than complete compensation for any USO service obligations);
- pricing limitations (i.e. constraints on establishing end-to-end network with reasonable profit margins, cross-subsidising within USO price basket, cross-subsidising between reserved and competitive market segment);
- access conditions;
- other factors (in particular, delays due to complicated licence requirements or opportunity for legal actions).

BCG expresses its qualitative judgments on the impact of individual factors that impinge on the LPF indices for the three countries under consideration as percentage scores. A score of 100 per cent means that a factor does not negatively impact on a given LPF index. A lower score – say 80 per cent – indicates a negative impact.

The overall impact of all factors on an LPF index is calculated as the product of the percentage values associated with each individual factor. In other words, negative impacts on the LPF index interact multiplicatively.

Table 2.1 shows the results of BCG’s analysis, both for individual impacts on the LPF indices and overall LPF indices in the three countries.

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<sup>4</sup> BCG (2005), *ibid.*, Introduction, slide 1. Little information is provided on the interviews except that “the final results have not been shared with interview participants”.

**Table 2.1**  
**BCG Results for Level Playing Index and Component Factors**  
**in the Dutch, German and UK Addressed Mail Markets**

	Ideal Level Playing Field Situation	Possible Deviation from Ideal Situation	Netherlands	Germany	UK
Liberalisation	Fully liberalised market	Partly liberalised market	88%	73%	100%
Financial Advantages	Equal VAT exemptions	VAT exemptions only for the incumbent	93%	49%	21%
	Pension fund is own responsibility	Government pays pension fund shortage	100%	100%	100% <sup>(1)</sup>
	Fair compensation for USO service requirements	Compensation for USO higher or lower than actual costs	100%	100%	100%
Pricing Limitations	Possibility to establish end-to-end network with reasonable profit margins	Market distortion through low price cap	100%	100%	57%
	No cross-subsidizing within USO price basket	Price differentiation within USO basket	100%	100%	100%
	No opportunity for cross-subsidizing between reserved area and competitive markets	Large reserved area and low level of transparency	100%	95%	100%
Access	Entrant has same conditions as comparable customer of incumbent	Entrant has other conditions than comparable customer of incumbent	100%	100%	100%
Other	No delays due to complicated licence requirements, opportunity for legal actions or uncertainty about regulation	Delays due to complicated licence requirements, opportunity to lengthen lawsuits, uncertainty in regulation	100%	85%	96%
	Complete accessibility	Some volume cannot be delivered in the last mile	100%	85%	93%
<b>Total LPF Index</b>			<b>81%</b>	<b>26%</b>	<b>11%</b>

Source: BCG (2005), slide 13.

(1) Factor would be 75 per cent if plans to recapitalise Royal Mail go through.

(2) Our own multiplication of component factors suggests the figures should be 81.84 per cent for the Netherlands, > 24.55 per cent for Germany and 10.69 per cent for the UK. Differences between BCG's and our results are likely to be due to rounding.

We should note that the final values of LPF, 81 per cent in The Netherlands, 26 per cent in Germany, and 11 per cent in the UK are determined by those individual components which are less than 100 per cent. In particular, without the VAT exemptions calculations the results for the overall LPF would be: The Netherlands 88 per cent; Germany 50 per cent; UK 51 per cent.

### 3. NERA Review of BCG's LPF Analysis

BCG's LPF analysis of addressed mail market entry conditions in the Netherlands, Germany and the UK is questionable in a number of different respects. In Section 3.1, we identify a number of weaknesses in BCG's methodological approach to comparing market liberalisation across the three countries. In Section 3.2, we critically assess BCG's calculation of the LPF indices for the addressed mail markets in the three countries they consider.

#### 3.1. Methodological Objections to BCG's Analysis

BCG's methodology for estimating LPF indices for Germany, the Netherlands and the UK relies on a number of problematic assumptions and modelling decisions, which we list below. We also discuss BCG's interpretation of its results.

##### *Arbitrary Assumptions*

The LPF index compares the projected net present value of the profits of entrants with the hypothetical net present value of the profits in a "level playing scenario".

We would expect it to be very difficult to define the hypothetical "level playing scenario" in the absence of any real life example. Factors that will affect this scenario are not just the entrant's market entry strategy, his market share growth and costs but also for example growth of the overall addressed mail market (which may be affected by the entrants' product innovations) the intensity of competition post-entry, the efficiency of the incumbent operator etc. These are likely to vary across markets. We are surprised therefore by the confidence with which BCG selects a less than comprehensive set of not perhaps unrealistic but certainly only rough-and-ready assumptions. However, we should note that it will be necessary in any analysis of this type to make some assumptions about the way an entrant could enter a new market and build up sales. The critical assumptions will be those on how far any barriers to competition will impact on these prospects, because it is this that has the main impact on the value of the LPF index.

We are more concerned about BCG's quantification of deviations from the "level playing scenario". BCG starts from a series of qualitative judgments about regulatory barriers to entry and then jumps to a set of quantitative results. BCG fails to bridge the gap between broad qualitative judgments and precise quantitative results. The extent of this gap can be illustrated by asking for example why "market distortions through low price cap" are given a score of 57 per cent in the UK rather than, say, 68 per cent or 49 per cent. We discuss other problematic scores in more detail in Section 3.2. In short, the quantitative precision of BCG's judgments about the impact of individual factors on the LPF index is not convincing.

##### *Arbitrary Aggregation Methodology*

BCG expresses the impact of each individual factor that impinges on an LPF index as a percentage below or equal to 100 per cent and the combined impact of all factors on the LPF index as the product of these percentages. BCG's justification for this multiplicative approach is that

*“Multiplication eliminates the need to properly sequence the addition of factors to eliminate double counting while proving an elegant and clear communication of the combined effect of the factors.”<sup>5</sup>*

This justification is questionable. First, the temporal sequence of factors matters both in an additive and in a multiplicative model if only because of the need to discount net present value losses according to their timing. Second, the multiplicative approach rests on the assumption that the different factors really do interact in a multiplicative factor in determining the “level playing field” as defined by the LPF index.<sup>6</sup> We do not find it obvious that the different factors considered by BCG in its LPF index calculation interact in this way. BCG’s attempt to illuminate the issue by means of a complex cross-tabulation of these factors (some of which are grouped together under certain headings for some reason while others are kept separate) is not successful.<sup>7</sup> Indeed, BCG distinguishes different degrees of interdependence between the different factors, including some of those factors which are found to have a significant impact on the LPF indices calculated in the study. These different degrees of interdependence are not however reflected in a simple multiplicative model.

### ***Questionable Valuation Methodology***

BCG (2005) focuses on the earnings before interest and tax (EBIT) achieved by an entrant to the postal market in the Netherlands, Germany or the UK under an “ideal level playing field” scenario and an alternative scenario over a 10-year period and discounted by an annual rate of 12 per cent.<sup>8</sup> We have two objections to this approach.

First, EBIT is not the correct concept to use in evaluating a business opportunity of this kind. The concept which is of interest is the post-tax free cash flows to the entrant. Post-tax free cash flows represent the cash that a company is able to generate after laying out the money required to maintain/expand its asset base. Formally, the post-tax free cash flows to the entrant are calculated as EBIT multiplied by a taxation factor (1 minus the corporate tax rate) plus depreciation and amortization plus other non-cash charges minus the change in net working capital minus capital expenditure. Free cash flow matters to potential entrants because it allows them to pursue opportunities that enhance shareholder value.

Second, the discount rate of 12 per cent used by BCG is questionable. BCG provides no explanation of the derivation of this discount rate in the presentation. It is unclear therefore whether this is a pre-tax or a post-tax weighted average cost of capital (WACC)<sup>9</sup> nor whether the rate is in nominal or real terms.<sup>10</sup> If post-tax free cash flows to the firm were to be

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<sup>5</sup> BCG (2005), *ibid.*, slide 24.

<sup>6</sup> BCG (2005), *ibid.*, states on slide 25 that “*The multiplicative nature of the model does, however, require that the different factors are independent of each other.*” However, BCG then goes on to demonstrate on slide 26 that “factor interdependencies” are “correctly handled by multiplication”. We believe therefore that BCG really meant “interdependent” rather than “independent” on slide 25.

<sup>7</sup> See BCG (2005), *ibid.*, slide 26.

<sup>8</sup> BCG (2005), slide 5.

<sup>9</sup> The WACC is the appropriate discount rate to use to estimate the present value of a company’s profits.

<sup>10</sup> Since BCG’s EBIT figures appear to be expressed in real terms (that is after adjusting for the impact of inflation) we presume that their discount rate is also expressed in real terms (note that the real rate of discount is approximately equal to the nominal rate minus the expected rate of price inflation).

discounted, the post-tax WACC would have to be used, for consistency. Given BCG's focus on EBIT, there is a case for using the pre-tax WACC. Even then, 12 per cent is likely to be an overestimate for an entrant into the addressed mail markets in Germany, the Netherlands and the UK. The correct WACC of the entrant depends on a number of factors – neither of them discussed by BCG – such as the competitive pressure in the market, the importance of regulation in the industry, the scope of technological progress, the financial structure of the entrant and the corporate tax rate. If BCG's WACC is too high, as we suspect, BCG will overestimate the impact of delaying liberalisation on the LPF index. We illustrate this connection between the choice of the WACC and the LPF index in different liberalisation scenarios with a numerical example in Appendix A.

### *Limited Checks*

BCG undertakes sensitivity analysis for the assumptions used in its study. In particular, BCG considers the impact of alternative assumptions within what BCG considers to be realistic bounds about

- Entrant's market share growth (base scenario: S-curve with 2 per cent end growth, alternative scenario: almost linear curve, with 5 per cent end growth);
- Entrants' costs (base scenario: RoS of -28 per cent in year 1, 10 per cent in year 19, alternative scenario: RoS of -54 per cent in year 1, 10 per cent in year 10);
- VAT and supplier cost assumptions (base scenario: VAT exempt customers: 50 per cent in the Netherlands, 30 per cent in Germany, and 45 per cent in the UK and 29 per cent suppliers costs for all, alternative scenario 1: VAT exempt customer: 55 per cent in the Netherlands, 25 per cent in Germany and 50 per cent in the UK, alternative scenario 2: supplier costs 25 per cent instead of 29 per cent for all);
- Delays in market liberalisation (per year of delay).<sup>11</sup>

BCG acknowledges that different assumptions about growth, costs and VAT can have a “significant impact” on LPF indices (71-81 per cent for the Netherlands, 10-30 per cent for Germany, 0-11 per cent for the UK) and that delays can have a considerable impact (“postponing market liberalisation will lower LPF index by about 5-15 percentage points per year”)<sup>12</sup>. What BCG fails to consider is the extent to which uncertainty about individual parameters may interact in the calculation of overall LPFs.

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<sup>11</sup> BCG (2005), *ibid.*, considers delays in market liberalisation already on slide 18 ff whereas wider sensitivity analysis starts on slide 21 with further details on slides 55ff.

<sup>12</sup> BCG (2005), *ibid.*, slide 20.

### ***Political Implications***

BCG does not set out explicit policy recommendations, but writes in the Executive Summary to their slides that

*“If the liberalisation process of the markets for addressed mail in the Netherlands (NL), Germany (DE) and the United Kingdom (UK) proceeds according to the announced roadmap, it will not create a level playing field (LPF) between the three countries.”<sup>13</sup>*

*“Postponement of full market liberalisation would lower each country’s score. For example, postponement of full market liberalisation until 2010 in Germany and 2012 in the Netherlands would result in an almost level playing field between the three countries.”<sup>14</sup>*

The concern expressed in these quotes is that the Netherlands might disadvantage its own incumbent postal operator by unilaterally liberalising its postal market as scheduled. However, policy makers can react to this concern in different ways. Apart from postponing domestic postal market liberalisation, the Netherlands could also put the case for greater market liberalisation elsewhere.

## **3.2. Objections to the Component Factors of BCG’s LPF Indices**

BCG considers a number of “regulatory” factors that might impact on LPF indices. In Section 3.2.1 we review BCG’s assessment of each of these negative impacts on the LPF indices.

BCG also flags up a number of additional “non-regulatory” factors that can affect the “playing field” for entrants but have not been included in LPF indices. We discuss BCG’s analysis of these factors in Section 3.2.2.

### **3.2.1. Regulatory Impacts on LPF Indices Quantified by BCG**

BCG considers a wide range of “regulatory” factors in the widest sense of the word which may impact on LPF indices. Five of these are found to reduce the LPF of Germany and the UK relative to the Netherlands: “VAT exemptions”, the “possibility to establish end-to-end network with reasonable profit margins”, “opportunity for cross-subsidising between reserved area and competitive markets”, “delays due to complicated licence requirements, opportunity for legal actions, uncertainty about regulation”, and “accessibility” of the incumbent’s network to the entrant. Below, we review BCG’s judgments on the impact of these and other factors.

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<sup>13</sup> The Boston Consulting Group (2005), *Level Playing Field Indicator for Addressed Mail Markets in the Netherlands, Germany and the UK*, Final Presentation, slide 2.

<sup>14</sup> The Boston Consulting Group (2005), *Level Playing Field Indicator for Addressed Mail Markets in the Netherlands, Germany and the UK*, Final Presentation, slide 2.

### *Treatment of VAT exemptions in the postal sector*

As we indicated at the end of Section 2, it is the differences in VAT treatment between the different national postal operators that causes the biggest differences between LPF values, so it is important to pay particular attention to BCG's treatment of this factor.

Table 3.1 shows the present situation with regard to value added taxation of postal services.

**Table 3.1**  
**Value Added Taxation for Postal Services**

Country	Universal Service provider		Private Operators
	USO	Other	Other
	Tax Rate	Tax Rate	Tax Rate
Germany	VAT exempt for Deutsche Post universal postal services	Others at 16 per cent VAT	VAT at 16 per cent
Netherlands	Letters under 100g or up to 2kg charged at single letter rate, parcels up to 10kg at single parcel rate, TPG special products (e.g. Reg. Mail, COD)	Bulk discounted mail over 100g, express mail services: subject to VAT at 19 per cent	VAT at 19 per cent
United Kingdom	VAT exempt	VAT exempt	VAT at 17.5 per cent

Source: *Postcomm A Review of Royal Mail Special Privileges 2004*, available at <http://www.postcomm.gov.uk/documents/competition/AReviewofRoyalMailsSpecialPrivileges.pdf>

Where postal services provided by the universal service provider are exempt from VAT, the USP does not have to charge VAT for the postal services it provides. However, exempt goods and services providers are not permitted to reclaim VAT on the inputs they purchase from their suppliers.

However a private postal operator that must charge VAT for its postal services can reclaim VAT on inputs that it purchases from suppliers. This means that the tax charged by the private competitor will reflect the percentage rate of VAT tax on its value added, that is costs less inputs purchased. The national operator that is exempt from VAT will not charge VAT on its services, but it will need to pass on some of the VAT that it has paid on its inputs. As we will see, one consequence of this is that it provides advantages to the private operator charging VAT in regard to one set of its potential customers.

In addition part of the burden of a tax like VAT will be borne by the supplier, and a part by the purchaser, depending on the market structure and the relative slopes of the demand and supply or cost curves.

But nevertheless, being subject to VAT does impose some disadvantage on the entrant firms. This effect might be compensated if they have lower costs, for example because they are more efficient and/or not hindered by trade union restrictions.

The real impact of the VAT differences will depend on the VAT position of the postal operator's customers. We can distinguish four main types of customers for postal services that are relevant here: private customers; business customers who must charge VAT on their

own outputs; business customers whose own output is zero-rated for VAT purposes; and business customers whose own output is exempt from VAT.

- Private customers would need to pay VAT on postal services provided by the entrant but not the USP. However, the private customer market is unlikely to be one that entrants will want to target and indeed the BCG analysis is specifically concerned with the market for business mail.
- Business customers who charge VAT on their own output will be able to reclaim VAT on purchased postal services. However, if they purchase from a national operator that is exempt from charging VAT (and thus not able to claim back VAT paid on purchased inputs) they will have to bear the cost of the VAT on purchased inputs that is passed on to the customer in the national operator's own prices. So these customers actually benefit from purchasing postal services from the operator that charges VAT.
- Business customers whose output is zero-rated for VAT purposes are allowed to reclaim VAT on inputs purchased to this group. These customers will be able to claim back VAT paid on postal services, but they will have to bear the cost of the VAT on purchased inputs that is passed on to the customer in the national operator's own prices. So these customers too actually benefit from purchasing postal services from the operator that charges VAT.
- Finally, business customers whose own output is exempt from VAT will not be able to reclaim VAT on postal services that they purchase so, all else equal, they would prefer to purchase postal services from an operator who did not charge VAT.

Calculating the impact of the VAT differences between a USP and private operator in the addressed business mail market therefore requires the following information:

- We need to know what proportions of addressed business mail are purchased by (1) businesses that are subject to VAT (2) businesses that are zero-rated (3) businesses that are exempt from VAT. Since these tax categories are defined by industry group this means business mail in each country has to be split by purchase by different industry groups. To repeat our earlier conclusions group (3) would, all other things equal, prefer to purchase postal services from an operator that is exempt from VAT. Groups (1) and (2) would prefer to purchase from an operator that charges VAT because they can reclaim the VAT and do not bear 'hidden' costs of VAT on the postal providers' own inputs. This conclusion is also reached by BCG in their analysis of VAT on postal services.
- Second, we need to know the rate of VAT in each country.
- Third, we need to know how far this rate of VAT would be reflected in the prices paid by the private operators. It is unlikely that they would be able to pass on the full amount of VAT to VAT-exempt purchasers – they might offer such customers discounts. Indeed, they might decide not to target or market their services to such sectors of the economy.

This is clearly a complex issue, and we are not convinced that BCG have taken full account of the mix of traffic from different types of customer, nor of the way in which VAT requirements would translate into changes in prices for postal services.

Moreover, there are plans to change the VAT treatment of public and private providers of postal services.

The European Commission (EC) Sixth VAT Directive (77/388/EEC) in 1977 prescribed the harmonisation of VAT laws across the Member States. This Directive allows exemption from VAT for postal services and stamps provided by a public authority. Recently there have been proposals put forth for a Council Directive to amend the aforementioned Directive. A Proposal relating to the VAT on services in the postal sector was released in May 2003.<sup>15</sup> Following a review by the European Parliament and the European Economic and Social Committee, an Amended Proposal was released in July 2004.<sup>16</sup>

The 2003 Proposal from the EC was issued in response to the trends in the postal market away from monopoly towards increased competition. Its main three elements are:

- the removal of exemption for postal services provided by public operators and postage stamps;
- amended place-of-supply-rules<sup>17</sup> with a single VAT rate for most private post;
- and the option of a reduced rate.

In response to concerns about distortions in the competition between private and public operators of postal services (the VAT exemption is limited to public providers) the 2003 proposal recommends that “a reduced VAT rate is made available to Member States to apply to standard postal services. This will include the majority of private mail but will also apply to some business mail.”<sup>18</sup> In addition, “The attached proposal for a Directive therefore seeks to amend the VAT rules applicable to public postal services by making them generally taxable. However, to minimise the impact of this change on prices paid by final consumers, the proposed solution includes an option for a limited reduced VAT rate for letters and small packages.”<sup>19</sup>

Consequently our concern about the most important single feature of the LPF calculation, namely the treatment of VAT differences between the USP and other postal operators are (1) it is not clear that UGC have undertaken the required detailed analysis of how the composition of mail volumes will impact on competition given the different VAT treatment of different business customers and the resulting impacts on prices, and (2) the LPF calculations do not appear to take account of proposals to reduce distortions created by

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<sup>15</sup> Commission of the European Communities (2003) *Proposal for a Council Directive amending Directive 77/388/EEC as regards value added tax on services provided in the postal sector*; COM(2003) 234 final; 2003/0091 (CNS); [http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/com/2003/com2003\\_0234en01.pdf](http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/com/2003/com2003_0234en01.pdf)

<sup>16</sup> Commission of the European Communities (2004) *Amended proposal for a Council Directive amending Directive 77/388/EEC as regards value added tax on services provided in the postal sector*; COM(2004) 468 final; 2003/0091 (CNS); [http://europa.eu.int/eur-lex/en/com/pdf/2004/com2004\\_0468en01.pdf](http://europa.eu.int/eur-lex/en/com/pdf/2004/com2004_0468en01.pdf)

<sup>17</sup> The "place of supply" rules determine the country in which VAT is levied on supplies of goods and services. The detailed rules are complex.

<sup>18</sup> Commission of the European Communities (2003) *Proposal for a Council Directive amending Directive 77/388/EEC as regards value added tax on services provided in the postal sector*; COM(2003) 234 final; 2003/0091 (CNS); [http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/com/2003/com2003\\_0234en01.pdf](http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/com/2003/com2003_0234en01.pdf); p. 4.

<sup>19</sup> Commission of the European Communities (2003) *Proposal for a Council Directive amending Directive 77/388/EEC as regards value added tax on services provided in the postal sector*; COM(2003) 234 final; 2003/0091 (CNS); [http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/com/2003/com2003\\_0234en01.pdf](http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/com/2003/com2003_0234en01.pdf); p. 5.

different VAT treatment of postal services provided by the USP and postal services provided by competitors.

### *Timing of liberalisation*

According to BCG, liberalisation of the postal markets in The Netherlands, Germany and UK can be described as follows<sup>20</sup>:

- The Dutch market is currently 51 per cent liberalized, with full liberalisation scheduled for April 1, 2007,
- The German market is currently 35 per cent liberalized, with full liberalisation scheduled for January 1 2008;
- The UK market is fully liberalised as of January 1 2006.

BCG fails to state whether the percentage figures provided for Germany and the Netherlands refer to volumes or revenues.

BCG then goes on to derive the following quantitative judgments on the impact of the extent of market liberalisation on the LPF indices for the three countries:

**Table 3.2**  
**BCG's (2005) Market Liberalisation Scores**

	Netherlands	Germany	UK
<b>Market Liberalisation LPF Component Score</b>	88%	73%	100%

*Source: BCG (2005).*

The move from the information provided by BCG on market liberalisation in the three countries to these scores questionable. BCG assumes in its LPF calculations that even in the “ideal level playing field scenario”, the entrant’s market share does not exceed 10 per cent of the market even 10 years after entry. It is therefore unclear why less than complete liberalisation in Germany and the Netherlands should be a problem for entrants, especially given the prospect of full liberalisation in the foreseeable future.

### *Pension funds*

BCG explores whether underfunded pension schemes by incumbent postal operators are covered by taxpayers in the Netherlands, Germany and the UK, which they would interpret as a subsidy for the incumbent postal operator. BCG finds that this is currently not the case in either of these countries. However, if “plans to recapitalise Royal Mail were to go through”, its “pension fund is own responsibility” factor score would need to be lowered from the neutral 100 per cent to 75 per cent.<sup>21</sup>

<sup>20</sup> BCG(2005), *ibid.*, slide 16.

<sup>21</sup> BCG (2005), *ibid.*, slide 13.

We are sceptical about this analysis. The importance of pension fund obligations for a postal operator depends on past employment levels. Therefore, incumbent operators are likely to have larger provisions for future pension liabilities in their balance sheets than new entrants. This is a factor that should work *in favour* of new entrants. Therefore, it is unclear why the “pension fund is own responsibility” factor should be a neutral 100 per cent rather than, say, a positive 120 per cent in the absence of a taxpayer subsidy for the incumbents’ pension liabilities. The correct factor should reflect the extent of the pension deficit for the postal operator under consideration.

### ***Compensation for USO***

National operators have to provide universal service, which means delivering to most addresses in the country. This imposes a burden on the USP, though in the past NERA has argued that these burdens are not as high as is sometimes claimed by the USPs.<sup>22</sup> USPs are generally compensated for these obligations. However, entrants will not bear these obligations, and so should not suffer increased costs as a result. So we are therefore content that BCG use a score of 100 per cent in each country for this USO factor.

### ***Price Cap regulation***

BCG believes that the “low price cap” in the UK addressed mail market renders entry more difficult than in the German or Dutch addressed mail market (as reflected in a “market distortion through low price cap” factor score of 57 per cent).<sup>23</sup> More specifically, BCG asserts that

- in the UK “price caps are designed to create a 4-6 per cent margin for Royal Mail” and “actual EBIT margins in USO peaked at 7.1 per cent in 2004”; whereas
- “high price caps leave room for margins in mail business of approximately 20 per cent” in both the Netherlands and Germany.<sup>24</sup>

The tighter price cap in the UK forces the incumbent to reduce inefficiency and reduces monopoly rents. This in turn makes it difficult for an entrant to compete with the incumbent on price.

We agree with the structure of BCG’s argument. Tighter price cap regulation affects prospects for new entrants. However, we question BCG’s detailed judgments on the tightness of the price cap in the three countries.

First, we note that EBIT margins are only one indicator of the effectiveness of price cap regulation across countries. EBIT margins are not only determined by the price cap the

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<sup>22</sup> See NERA’s report to the European Commission *Costing and Financing of Universal Services in the Postal Sector in the European Union* A Report to DGXII, October 1998.

<sup>23</sup> BCG (2005), *ibid.*, slide 13.

<sup>24</sup> BCG (2005), *ibid.*, slide 44.

company faces but also by its performance. Postcomm (2005) explicitly acknowledged this point.<sup>25</sup>

Second, we believe that BCG could have presented its profit margin figures more carefully. For the UK, we get information on USO EBIT margins rather than addressed mail EBIT margins. For Germany and the Netherlands on the other hand BCG provides data on “margins in mail business” (probably EBIT margins). Precise dates are not provided. Nor are we given time series data, which could help to filter out the impact of a regulatory review on EBIT margins. At least, BCG's figures appear to be in the right order as far as they go. TPG's 2004 Annual Report states that earnings from operation<sup>26</sup> as a percentage of TPG's world-wide mail operating revenues were 22.2 per cent in 2004.<sup>27</sup> Deutsche Post's (2005) Annual Report shows a mail EBIT of €2,030m in 2005 and mail revenues of €12,878m, i.e. an EBIT margin of 16 per cent. Postcomm states in its Initial Proposals that Royal Mail achieved a return on turnover of 4.1 per cent in 2003.<sup>28</sup>

### ***Scope for cross-subsidising within USO price banded or between reserved area and competitive market***

BCG identifies a certain risk (expressed as “large reserved area ” factor score of “>95 per cent”<sup>29</sup>) that Deutsche Post might cross-subsidise products and services within its USO basket, but no risk that TPG or Royal Mail might do the same (as indicated by a factor score of 100 per cent for these countries) in its factor score overview table.<sup>30</sup> This set of factor scores does not however exactly match BCG's detailed assessment later in the presentation.<sup>31</sup> There BCG acknowledges that the risk of cross-subsidisation in the Netherlands and in Germany is very similar until full market liberalisation (i.e. the abolition of the reserved area), scheduled for April 1 2007 in the Netherlands and January 1 2008 in Germany. This would suggest that there the factor score for the Netherlands should lie between that for Germany and the UK.

In its factor score overview table, BCG does not indicate any risk that any of the postal operators under consideration might cross-subsidise products and services within its USO basket (“price differentiation within USO basket” factor scores are 100 per cent for all three countries).<sup>32</sup> By way of explanation, BCG's states that in the Netherlands, “basket pricing” is “not applicable”, that in the United Kingdom the separation of the single piece tariff basket and the bulk tariff basket within the USO basket constrains subsidisation of price-sensitive from price-insensitive customers, and that in Germany, tariff baskets within the USO basket

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<sup>25</sup> Postcomm (2005), *Initial Proposals*, Annex 2, p. 194

<sup>26</sup> Earnings from operation are closely related to EBIT. EBIT equal earnings from operation plus other income generated outside the normal scope of a company's typical operations plus extraordinary income (or loss) due to an event that is deemed both unusual and infrequent in nature.

<sup>27</sup> TPG (2004), *Annual Report*, p. 30.

<sup>28</sup> Postcomm (2005), *Initial Proposals*, Annex 2, p. 194

<sup>29</sup> BCG (2005), slide 13.

<sup>30</sup> BCG (2005), slide 13.

<sup>31</sup> BCG (2005), slide 48.

<sup>32</sup> BCG (2005), slide 13.

are defined by product and service.<sup>33</sup> We understand BCG's argument to be that price caps in the three countries are sufficiently fine-grained to curtail operators' freedom to engage in strategic cross-subsidisation. However, sufficiently fine-grained price caps by themselves do not necessarily eliminate all cross-subsidisation. This also depends on historical prices for different products and services and the levels of the price caps. BCG fails to discuss these other determinants of the level of cross-subsidisation.

### ***Access Conditions for Competitive Market Operator and other Customers of Incumbent***

According to BCG, competitive market operators and other customers of incumbent mail operators in Germany, the Netherlands and the UK face equivalent access conditions (as reflected in a factor score of 100 per cent).

We agree that postal and/or competition law in all countries limits the scope for access discrimination. However, important differences in the extent of access agreement facilitation by the regulator remain:

- According to Ecorys (2005), *“Dutch postal legislation does not arrange regulation of access to the facilities of the incumbent operator. [...] Negotiated access applies to the delivery of bulk mail by large customers and competitors at the sorting centres of TNT.”*<sup>34</sup>
- For the UK, Ecorys (2005) writes that *“there does not exist mandatory regulated access to the facilities of the universal service providers. In the absence of an access code, it is up to third parties to negotiate access with Royal Mail. If an agreement cannot be reached, either party can request a determination of the terms of access from Postcomm. Postcomm has put effort in establishing third party arrangements to Royal Mail's network by consulting market participants and subsequently preparing a sample access agreement, although agreement was subsequently reached between Royal Mail and the first access seeker. In this respect, the principle of transparency and non-discrimination is applied, but the regulatory intervention by the regulator goes a bit further than in almost all other EU Member States.”*<sup>35</sup>
- According to Ecorys (2005) *“the Germany postal act offers opportunities for customers and competitors to get regulated downstream access to the facilities of Deutsche Post. Competitors, but especially large clients, hand over their mail to the outward and inward sorting centres of Deutsche Post for further dispatch. In return for their work sharing activities, competitors and customers receive a regulated discount [...], dependent on the point of entry and the extent of work carried out. The Bundesnetzagentur determines the discount percentages.”*<sup>36</sup>

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<sup>33</sup> BCG (2005), slide 48.

<sup>34</sup> Ecorys (2005), “Development of Competition in the European Postal Sector”, A Report for the European Commission, Country Annexes, p. 199-200.

<sup>35</sup> Ecorys (2005), “Development of Competition in the European Postal Sector”, A Report for the European Commission, Country Annexes, p. 290.

<sup>36</sup> Ecorys (2005), “Development of Competition in the European Postal Sector”, A Report for the European Commission, Country Annexes, p. 100.

In view of these differences in access regulation in the three countries, it is surprising that BCG gave the same factor score to all countries.

### *Impact of delays*

According to BCG, delays due to complicated licence requirements, opportunities for legal actions or uncertainties about regulation are much higher in the UK and in Germany than in the Netherlands (the respective scores are 100 per cent for the Netherlands, 85 per cent for Germany and 96 per cent for the UK).<sup>37</sup>

BCG's empirical basis for these judgments seems to consist of a few selective interviews with postal operators (with TNT, Sandd and Selektmail for the Netherlands, with Europost for Germany and with TNT Mail UK and UK Mail for the UK).<sup>38</sup> It would have added credibility to BCG's precise quantitative judgments if BCG had interviewed a larger group of people. As things stand, the reader is left wondering what makes licence requirements so complicated in the UK as to warrant a deduction in the relevant factor score of 4 per cent and how Deutsche Post can manage to delay market entry in Germany by "on average one year" "because of legal actions by the Deutsche Post" and "uncertainty over outcomes of pending legal actions"<sup>39</sup> and thereby cause a reduction in the relevant factor score by 15 per cent.

We researched postal licensing requirements in the UK and found Ecorys (2005) revealing:

*"Postcomm has indicated that it will take some time to put into place a framework more tailored to a fully open market, including a new licence regime and common operational procedures. The light-handed licensing regime does however not pose severe restrictions on (potential) postal operators. Postcomm is working on the removal of legal barriers to entry [...]."*<sup>40</sup>

This passage does not suggest that there are major licensing obstacles to postal market entry in the UK, contrary to what BCG (2005) suggests.

We also researched legal and regulatory issues that may delay market entry in Germany. According to Ecorys (2005),

*"The European Commission had, in its decision from 20 October 2004, decided that Germany, by extending the exclusive rights of Deutsche Post to the collection of mail and mail preparation services, had not transposed the postal directives properly into national law. Moreover, the Federal Cartel Office (Bundeskartellamt), in its decision of 11 February 2005 ordered Deutsche Post to stop discriminating its competitors as regards consolidation of mail and denying rebates for work sharing, thus providing full network*

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<sup>37</sup> BCG (2005), slide 13.

<sup>38</sup> BCG (2005), *ibid.*, slide 50.

<sup>39</sup> BCG (2005), slide 50.

<sup>40</sup> ECORYS (2005), *Development of Competition in the European Postal Sector*, A Report for the European Commission, Country Annexes.

*access for them. Both the German government and Deutsche Post refused to accept the respective decisions and went to the law courts. The litigation is still pending. Furthermore, the Federal States Council (Bundesrat) has presented a draft amendment to the Postal Act on 18 February 2005, aiming at the abolition of the current restrictions for consolidators. The Council was however overruled by the Parliament (Bundestag). In the past few years, the Ruling Chamber of the Bundesnetzagentur responsible for postal issues has also dealt with numerous cases about the practical implementation of the access conditions, determining rates and discount rates, setting cost allocation methods and dealing with potential anticompetitive behaviour of Deutsche Post via access agreements.”<sup>41</sup>*

This information lends some support to BCG's view that opportunities for legal actions or uncertainties about regulation can cause delays to market entry in Germany, though certainly not to BCG's bolder claim that they cause “on average one year delay”.

### ***Last Mile Accessibility***

For a certain percentage of the volume, distribution requires utilizing the incumbent's network after the first delivery attempt has failed or incurring additional costs to complete the delivery. Accessibility of the incumbent's redirection database, postcode database, P.O. Boxes and other privileges for the incumbent (e.g. exemption from parking/traffic restrictions) is therefore an issue for potential entrants. Here, BCG states that

- In the Netherlands, entrants have “PO Box access” and “market based access to redirection” and “accessibility of ‘last mile’” is “no issue”<sup>42</sup> (as reflected in a factor score of 100 per cent)<sup>43</sup>;
- In Germany and the UK, about “2 per cent of volume cannot be delivered” by “competitive market operators” due to “lower accessibility of PO boxes and buildings”.<sup>44</sup> Germany receives a lower factor (85 per cent) than the UK (93 per cent). The reason is apparently that “for 2 per cent of volume, distribution via incumbent against full costs” is possible in Germany whereas “for 2 per cent of volume, distribution via incumbent against downstream cost” is possible.

BCG seems very confident that last mile accessibility is not an issue in the Netherlands. Ecorys (2005) mentions an issue with TNT's management of the database of postal codes that would have warranted further research: “*A practical barrier for new postal operators forms the current postal code system. TNT now manages and handles the database of postal codes. According to a competitor, the Postal Act should guarantee that the database of postal codes is managed well and is easily accessible to other operators. A reference was made to Sweden where Posten and CityMail have established a joint venture for the organisation and maintenance of the postal code system. The Ministry of Economic Affairs stresses the*

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<sup>41</sup> ECORYS (2005), *ibid.*, p. 101.

<sup>42</sup> BCG (2005), slide 15.

<sup>43</sup> BCG (2005), slide 13 and slide 52.

<sup>44</sup> BCG (2005), slide 52.

*importance of an accessible database but argues that TNT has already responded appropriately to allow competitors to have access to the database in a timely fashion. In the preparation of the amendment of the Postal Act, the Ministry of Economic Affairs will assess whether a separate legislative article is necessary.”*

We also wonder about whether differences in distribution charging arrangements in Germany and the UK have been correctly reflected in BCG's factor scores. This depends on how “full costs” and “downstream costs” mentioned by BCG are exactly defined and determined.

### **3.2.2. “Non-regulatory” Impacts on the “Playing Field” Identified by BCG**

BCG considers five “non-regulatory” factors that can also affect the “playing field” for new entrants:

- excessive trademarks and influence over suppliers;
- restrictive common labour agreements or labour regulations;
- an advisory or passive role of the regulator;
- lack of experience in the market for dealing with entrants;
- low population density or a low mail volume per inhabitant.<sup>45</sup>

Of these factors, BCG judges two to be important and favourable to incumbents in Germany: excessive trademarks and influence over suppliers and low population density and low mail volume per inhabitant. The other factors are considered to be of low “relative importance”.

We agree that “excessive trademarks and influence over suppliers”, two classical strategic advantages of the incumbent in the upstream and downstream market, are of great importance. Indeed, they may overshadow many of the regulatory factors considered in BCG's calculation of the LPF indices for the Netherlands, Germany and the UK. What surprises, however, is BCG's judgment that these advantages are important in Germany (as indicated by a “-“ or “favours incumbent” score in BCG's overview table<sup>46</sup>) but apparently do not affect the level playing field in the Netherlands or the UK (as indicated by a “0” or “is level” score in BCG's overview table). In BCG's explanatory table two slides later<sup>47</sup>, however, BCG lists several important factors underpinning the incumbents' upstream and downstream market power in the Dutch and UK postal markets (brand and industry experience as well as the TPG “Post Port Betaald” trademark in the Netherlands and brand and industry experience and buying power with suppliers in the United Kingdom). This information seems to be inconsistent with BCG's earlier judgment.

The other non-regulatory factor highlighted by BCG, population density and mail density, also warrants further analysis. What matters to an entrant aiming to achieve 10 per cent market share over a 10 year period, is not so much population density and mail volume on a national scale, but the availability of particular market niches with a high population density

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<sup>45</sup> BCG (2005), *ibid.*, slide 14.

<sup>46</sup> BCG (2005), *ibid.*, slide 14.

<sup>47</sup> BCG (2005), *ibid.*, slide 16.

and a large mail volume. Therefore, a more fine-grained assessment of density factors in the different postal markets would be of interest.

We further object to BCG's categorical judgment that the German Bundesnetzagentur "lacks [a] policymaking role", that the Dutch regulator "lacks policymaking role but has oversight into aspects of pricing" and that "Postcomm has enforcement and policymaking power"<sup>48</sup>. What regulators are charged with in all three countries is similar: they determine the price cap for the incumbent postal service operator. Constraints on regulatory power moreover exist in all three countries and have a complex impact on regulatory outcomes which would warrant further analysis than BCG provides.

We also question BCG's analysis of how "experience in [the] market for dealing with entrants"<sup>49</sup> affects the level playing field between potential entrants and incumbents in the market. That is if "viable end to end competition"<sup>50</sup> has been demonstrated in the Dutch addressed mail market, this does by no means signal an attractive competitive environment for new entrants, who would have to share the market with several rivals.

More generally, we find BCG's list of important other factors not yet included in the LPF indices too short. In particular, BCG does not systematically discuss factors related to the operating and capital efficiency achieved by the incumbent postal operator in each market. The efficiency of the incumbent directly impacts on prospects for potential entrants. For example, if TPG were more efficient than Royal Mail or Deutsche Post, entry into the Dutch addressed mail market (be it by Deutsche Post or a new entrant) would be more difficult than entry into the German or British postal market. To be sure, BCG discusses the impact of price cap regulation as well as the effect of restrictive common labour agreements or labour regulations on the price competitiveness of the incumbent. However, relative efficiency levels reflect other factors than the tightness of the regulatory price cap and the flexibility of the labour market. An important further determinant of postal operator efficiency is the skills and experience of the labour force and the pace of engineering innovation in a country.

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<sup>48</sup> BCG (2005), *ibid.*, slide 16.

<sup>49</sup> BCG (2005), *ibid.*, slide 14.

<sup>50</sup> BCG (2005), *ibid.*, slide 14.

## 4. Conclusions

BCG's analysis of entry conditions in the markets for addressed mail in the Netherlands, Germany and the UK is questionable. BCG's methodology for calculating LPF indices for the three countries is pseudo-scientific and its execution is marred by inaccuracies.

Designing an index that captures the many different aspects of postal market liberalisation is an ambitious project. Instead of aiming for spurious quantitative accuracy, BCG should have stated upfront that its analysis is primarily qualitative in nature.

In many cases it is difficult to see how BCG has reached its conclusions on what are very complex issues. Apart from presenting a 'scale curve' which shows the ratio between costs and revenue for different market shares<sup>51</sup>, BCG's report contains little analysis of the costs that an entrant will face in serving different parts of the market for postal services. Any analysis of the prospects for market entry in the postal sector needs to take explicit account of the cost structures facing both incumbent and potential entrants. This was a major lesson of NERA's study of the economics of postal services for the European Commission.<sup>52</sup>

Another of BCG's questionable assumptions is that the appropriate discount rate to use should be 12 per cent. One of the objectives of the BCG study seems to be to show that delaying liberalisation in The Netherlands will bring the values of their indices closer together. While NERA in any event disputes the way that BCG have defined and calculated the index, their use of what we regard as a high discount rate decreases the rate at which the values of LPF converge when liberalisation is delayed.

BCG's accounting assumptions in its evaluation of prospects to potential market entrants are also problematic. Valuation work requires the use of the discounted free cash flows to the firm, which measure the firm's ability to reward its investors. However, BCG focuses on the discounted future EBIT generated by the firm instead of its discounted future free cash flows. This is not the accounting concept investors are primarily interested in.

Furthermore, BCG assumes that different negative impacts on the LPF indices interact multiplicatively. This approach runs the risk of overstating the importance of impacts that do not in fact interact in this manner. This in turn could lead to a downward bias in LPF indices. This bias will be largest for those countries for which BCG has identified the greatest number of individual negative impacts, i.e. for Germany and the UK. In addition, the use of a multiplicative model increases the sensitivity of the LPF indices to changes in assumptions about the impact of component factors.

While BCG discuss a number of factors which might cause their LPF index to lie below 100 per cent, the way that they treat differences between VAT treatments turns out to have the biggest impact on their calculations. This issue is very complex, and depends on the inter-relationship between the VAT treatment of the postal operators' output, and the VAT treatment of the output of the firms purchasing postal services. We do not believe that BCG have taken adequate account of these inter-dependences, nor of the way that variations

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<sup>51</sup> BCG (2005), *ibid*, slide 8. We infer that this scale curve shows how BCG expect unit costs to fall as sales increase.

<sup>52</sup> NERA *The Economics of Postal Services* Report for DG-MARKT, 2004.

between operators in cost levels, tax rates, and market structure will interact to determine ultimate price differences between public and private postal operators serving different types of postal users.

We also have also expressed reservations about many of the other individual components of BCG's analysis. BCG's overall conclusion that the UK market, which has already been fully liberalised, should have a much lower score than either the Dutch or German markets, both of which have not yet been fully liberalised, looks very surprising.

## Appendix A. Delays to Liberalisation and the Discount Rate

BCG (2005) uses a diagram to illustrate the calculation of the net present value of the EBIT accruing to an entrant to the postal market over a ten year period under “ideal level playing field” conditions.<sup>53</sup> We read off information on EBIT from the graph and calculated the net present value of the EBIT using BCG’s constant annual discount rate of 12 per cent. The results are shown in Table A.1 below.

**Table A.1**  
**Illustrative Example of Discounted EBIT Calculation**  
**(assuming BCG Discount Rate of 12 per cent and Market Entry in 2006)**

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<b>EBIT</b>	-5	-10	-5	0	5	15	30	50	75	100
<b>Discount Rate</b>	12%									
<b>Discounted EBIT</b>	-4.46	-7.97	-3.56	0.00	2.84	7.60	13.57	20.19	27.05	32.20
<b>10 year NPV of EBIT</b>	87.45									

*Source: BCG (2005) and NERA calculations.*

Using this information, we explored the effect on the net present value of EBIT streams over a 10 year period of

- Delaying market entry (e.g. through slower market liberalisation);
- Varying the discount rate.

Table A.2 shows our results.

**Table A.2**  
**Example of Discounted EBIT Calculation:**  
**varying the discount rate and the date of market entry**

Discount rate	10 Year Net Present Value of EBIT by Year of Market Entry			
	2006	2007	2008	2009
6%	148.05	139.67	131.76	124.31
8%	124.04	114.85	106.34	98.47
10%	104.09	94.62	86.02	78.20
12%	87.45	78.08	69.71	62.24

*Source: NERA calculation.*

Not surprisingly, the proportional impact of delays to entry on discounted EBIT streams increases with the discount rate.

<sup>53</sup> BCG (2005), slide 5.

This in turn will be reflected in LPF indices. Table A.3 tabulates LPF indices for different discount rates, assuming that delays to market entry are the only deviation from the “ideal level playing field scenario”.

**Table A.3**  
**Implications of Varying the Discount Rate and the Market Entry Date**  
**for the LPF Index**

Discount rate	LPF Index by Year of Market Entry			
	2006	2007	2008	2009
6%	100%	94%	89%	84%
8%	100%	93%	86%	79%
10%	100%	91%	83%	75%
12%	100%	89%	80%	71%

*Source: NERA calculation.*

Table A.3 shows that raising the discount rate increases the impact of delaying liberalisation on the LPF value. BCG (2005) may have been aware of this effect when choosing a very high discount rate of 12 per cent when estimating the effect of delaying market liberalisation on LPF indices.<sup>54</sup>

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<sup>54</sup> BCG (2005), slide 18ff.

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