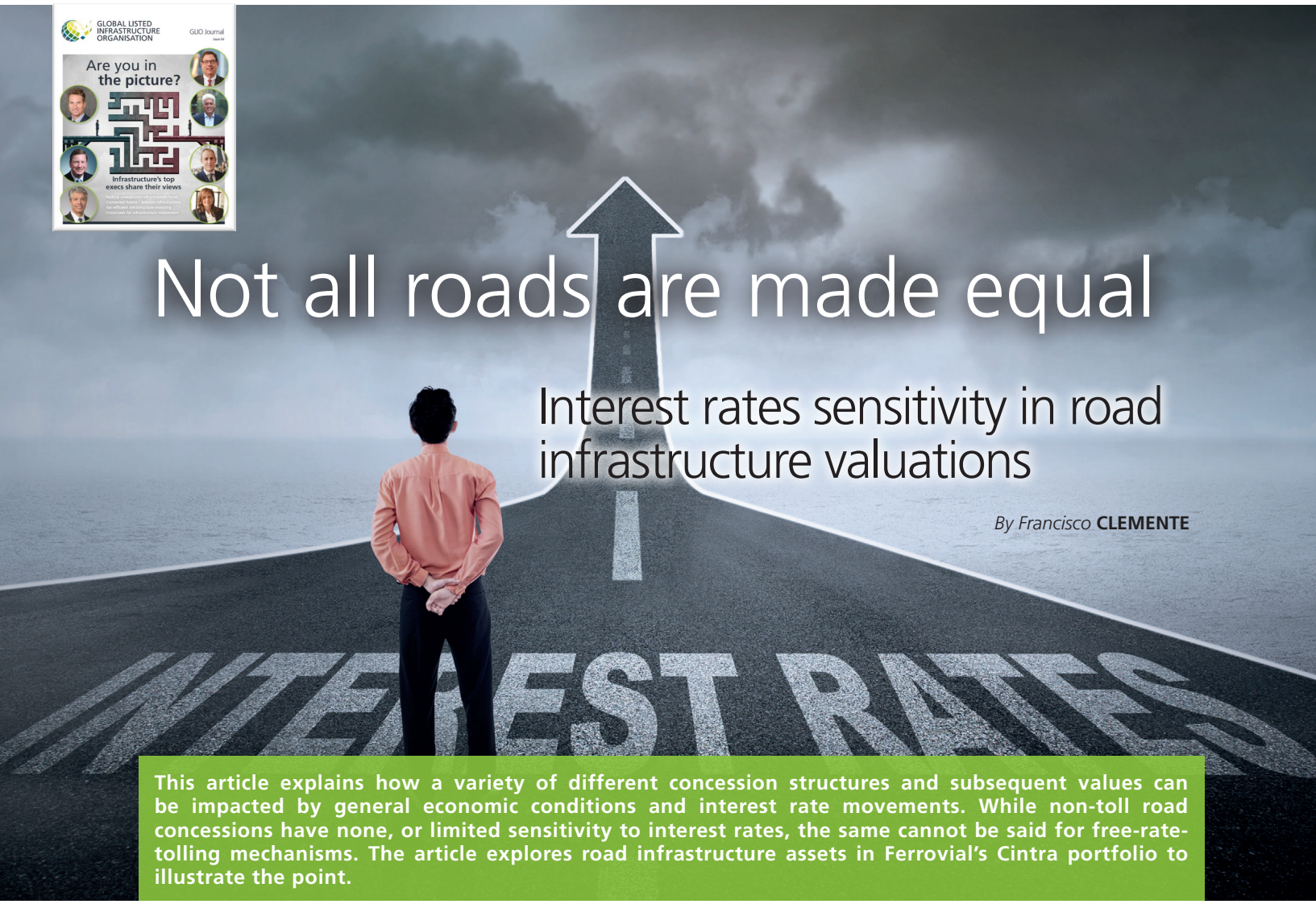
Not all roads are made equal

Interest rates sensitivity in road infrastructure valuations

By Francisco **CLEMENTE**



This article explains how a variety of different concession structures and subsequent values can be impacted by general economic conditions and interest rate movements. While non-toll road concessions have none, or limited sensitivity to interest rates, the same cannot be said for free-rate-tolling mechanisms. The article explores road infrastructure assets in Ferrovial's Cintra portfolio to illustrate the point.

Toll road case study – Cintra

"When the interest rates rise, the value of the infrastructure assets decrease." You may have heard this remark in the past among the investment community, but we believe this is unfounded in many cases. The aim of this article is to dispel this rather sweeping statement and provide the reader with clear examples of when this is simply not the case.

Firstly, we go back to basics and see how future cash flows are built in a road infrastructure asset.

As displayed in Figure 1, the road asset cash flows depend on two factors: inflows and outflows. On the right-hand side, there are several factors that make the outflows limited and stable over time. In relative terms, EBITDA margins are high (in the range of 80% to 90% in our experience). In addition, Operating Expenditure (OPEX) and Capital Expenditure (CAPEX) are low and predictable. The vast majority of financial expenses are foreseeable and stable, given that the financial structures are normally hedged without any significant refinancing risk.

On the left hand side, the relevant part of the equation is to understand how the inflows are generated and what is their level of variability. Revenues of a road asset will depend upon the level of traffic volume and tariff scheme applied, and both vary depending on macro variables on one hand, and concession contracts and inflation, on the other hand. These elements we classify as 'critical factors'.

From this point, we use assets held in the Cintra portfolio to illustrate our case.

Figure 2. explains how we break the assets into two clusters: Without traffic risk (non-toll roads) and With traffic risk (toll roads).
In addition, we sub-categorize:
1) Without traffic risk into:
    1) 'no CPI adjustment' and
    2) 'CPI-adjusted',

2) and With traffic risk taking into consideration how tariffs are set into:
    1) rates escalated to CPI,
    2) linked to GDP per capita, and
    3) the user's 'Willingness to Pay'.

Finally, each asset is ranked depending on how sensitive concession values are to interest rate movements. For example, 1 means the concession value has no sensi-

tivity to interest rate movements (and can be considered 'High Risk'), and 5 means the concession value has high sensitivity to interest rate movements (and can be considered 'Low Risk').

Interest rate effect

Now let's see what economic theory says about changes in interest rates, and how they impact on the road asset value. We know that economic activity has a positive correlation with inflation, interest rates and exchange rates, and that increases in interest rates are usually preceded by economic expansions. The question is how will these changes effect the road asset's value? Here we use the examples of the 407 ETR (Ontario, Canada) and the Managed Lanes (ML) (USA) projects shown in the last row of Figure 2.

To help do this, Figure 3. explains the effects of changes in economic conditions on road infrastructure asset values. In the vast majority of the cases, economic activity (Real GDP) produces an increase in the demand for roads in terms of traffic volume or congestion (VKT), plus a general price increase (inflation). Increases in inflation lead to a rise the road asset tariffs. As a result of this, the expected cash flows of the asset will increase. We term this the 'cash flow effect' (see the left-hand side of Figure 3), as it increases the value of the asset (indicated by the green colored +Value).

Conversely, as the interest rate increase pushes up the cost of capital, the discounted value of the cash flows will be negatively impacted. This will reduce the present value of the asset. We call this the 'Discount rate effect' (see the right-hand side of Figure 3).

The key question now is to measure which effect is the strongest, or has most dominant weight.

In order to answer this question, we enlisted Professor Carlos Vergara Alert, from IESE Business School, to make an empirical analysis of the impact of interest rates changes on the value of the different categories of assets in the Cintra portfolio, with a focus on the fifth category (free-rate tolling mechanism) which includes the 407ETR and the ML projects[1].

As a way to illustrate the findings, we >

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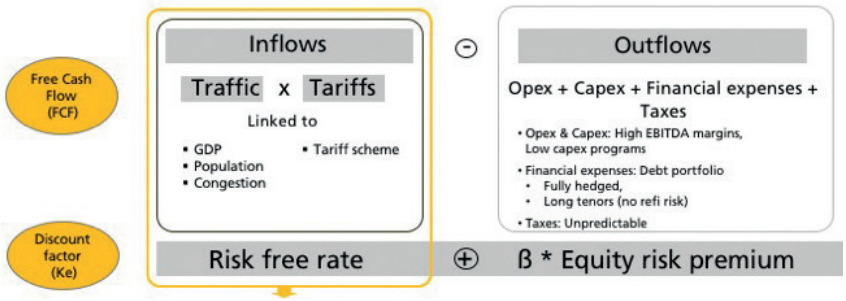
Figure 1: Cashflows of road infrastructure



Source: Cintra

Figure 2: Cintra portfolio – asset breakdown

WITHOUT TRAFFIC RISK (NON-TOLL ROADS)

1	- Availability payment (no CPI adjusted):	*Toowoomba (Australia)*	CF=K
2	- Availability payment (CPI adjusted):	*Norte-Litoral (Portugal)*	CF= f(CPI)

WITH TRAFFIC RISK (TOLL ROADS)

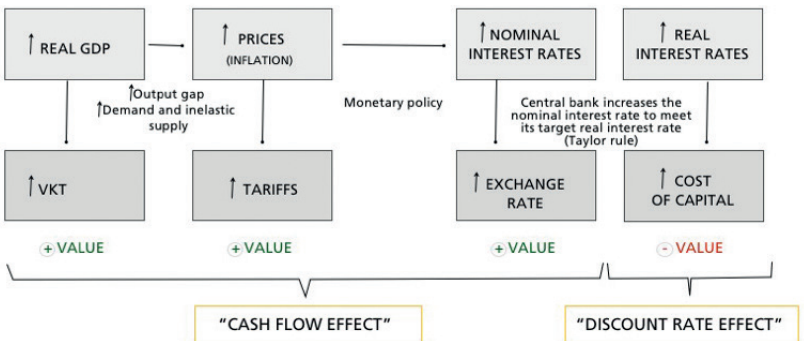
3	- Pre-fixed toll rate (CPI escalated):	*AUSOL (Spain)*	CF= f(CPI, traffic)
4	- Tolls escalated to a maximum (GDP per capita):	*"Chicago Skyway", ITR (USA)*	CF= f CPI, traffic, GDP per capita)
5	- Free-rate tolling mechanism:	*407 ETR (Canada), ML (USA)*	CF= f CPI, traffic, willingness to pay)

"INTEREST RISK METER OF CONCESSION VALUE"

Source: Cintra

Figure 3: The effects of economic conditions on infrastructure asset value

WHAT THE ECONOMIC THEORY SAYS...



Source: Cintra

1. For further details, please see: https://www.ferrovial.com/es/accionistas-e-inversores/valoracion-autopistas/

Assets which operate under the free-rate tolling scheme are able to extract value in periods of interest rate rises and clearly demonstrate an excess 'cash flow effect' over the 'discount rate effect'.

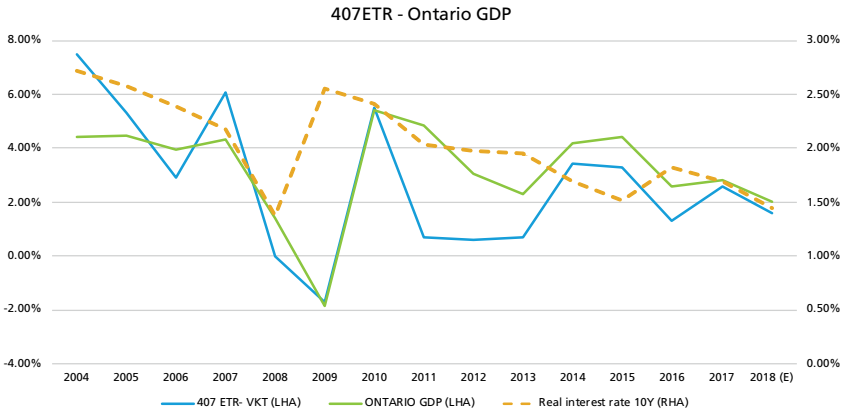
look at the 407 ETR´s (Ontario) performance over the past 15 years[2]. As shown in Figure 4, Ontario's GDP growth (green line) has led to traffic volume/congestion growth in the 407 ETR asset (blue line). GDP growth vs. traffic volume growth showed a significant correlation of 0.75 for the period of 15 years. This has occurred while the asset's tariff achieved a compounded annual growth rate (CAGR) of 7.8%.

There are two additional factors which helped ramp up the revenue growth of the asset – significantly above GDP growth. One is the Willingness to Pay (WTP), and the other is traffic volume/congestion (see the equation in Figure 2).

General traffic volume/congestion growth and users' WTP growth lead to higher traffic volumes on toll roads in particular, and certainly when compared to average traffic growth across the whole road network, because:

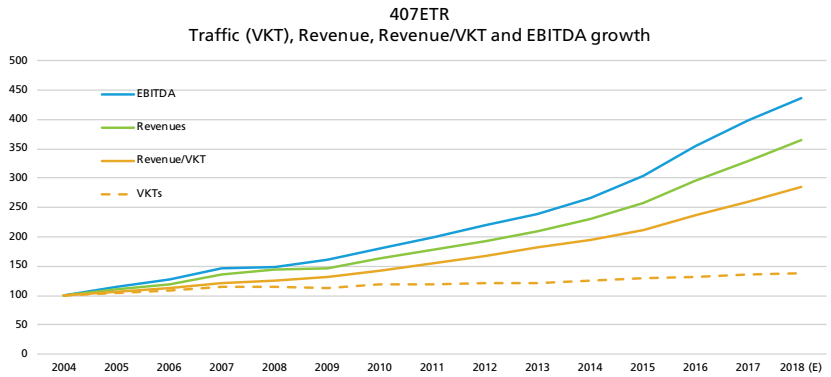
- when economic growth pushes up GDP per capita, it generally leads to the increase household income. This parameter is the driver of the users' WTP for the use of a toll road. The increase of the WTP makes a toll road better value to potential users, given the same time saving, and
- the increase of the traffic volume/congestion leads to the increase of the time savings and travel time reliability provided by the road asset, since 407 ETR has higher available capacity, compared against its alternatives.

Figure 4: Cintra's 407 ETR asset and the relationship between GDP growth, interest rates and traffic volume



Source: Cintra

Figure 5: 407 ETR traffic volume growth, revenue and EBITDA since 2004



Source: Cintra

Figure 5. highlights these dynamics in terms of traffic volume, revenue and EBITDA growth.

While the province of Ontario recorded a GDP CAGR 3.2% over the period, and traffic volume grew at similar pace (CAGR 2.3%), revenue and more importantly the 407 ETR EBITDA went up at an outstanding 11.1% CAGR.

We conclude that not all roads are made equal. Assets like 407ETR (and the ML projects), which operate under the free-rate tolling scheme are able to optimize tariffs, or maximize revenue, capturing users' willingness to pay as economic conditions change. These type of assets are able to extract value in periods of interest rate rises and clearly demonstrate an excess 'cash flow effect' over the 'discount rate effect'. These assets exhibit value generation as interest rates rise and offer a clear example of how investors can benefit in this environment.

Francisco **CLEMENTE**

Economic Science graduate from the Complutense University of Madrid and MBA from the IE Business School, he joined Ferrovial in 1987. He was appointed Head of Project Finance of Ferrovial in 1991. He became the Chief Financial Officer of Cintra in 2002 (listed in Ibex-35, Madrid , 2004-2009).
Over the past 25 years, and leading a team of highly qualified professionals, he has been involved in the development of more than 150 private infrastructure projects, mainly focused in transport worldwide.
Member of the Steering Committee of Cintra and member of the Board of Directors of companies such as 407 ETR (Canada), and Managed Lanes NTE 1A-1B, NTE 35W and LBJ (USA).

2. Cintra's stake in the asset is 43.23%