REAL ESTATE
THEORY AND MODELLING

The Chronicles of Christophe Pineau, Senior Advisor, IEIF

INSTITUT
DE L'ÉPARGNE
IEIF IMMOBILIÈRE
& FONCIÈRE

CHRONICLE N°11

Net operating income: the impact of rent indexation

In this first series of Chronicles on net operating income, we are making the simplifying assumption (which will be lifted at a later date) that we are working on the case of a single-tenant building leased in part (between 0 and 100% of the building) at the initial date t_0.

Unless otherwise specified, all calculations will be made per square metre (m^2). To obtain the total amount, simply multiply by the surface area concerned.

The aim of this series of Chronicles is to define a simple but complete formulation of net operating income and its rate of change.

Our starting point is the general formula presented in Chronicle 10.

$$(1)\ noi = \ (nrv.(1 + ri\%).(1 - asm\%) - mc).(1 - vac\%)$$

with:
noi : net operating income
nrv : net rental value
$ri\%$: rent indexation
$asm\%$: average support measures
mc : management costs
$vac\%$: vacancy rate

Let's look at time. The property is let at the beginning of year 0 and the owner receives annual income adjusted for the various impacts (vacancy, management costs, etc.) over the following years. We consider that the support measures only concern the first year.

During the first year, the owner receives an income based on the net rental value less support measures impact and management costs, adjusted for the vacancy rate:

$$(2)\ noi_{0,1} = (nrv_{0,1}.(1 - asm\%_{0,1}) - mc_{0,1}).(1 - vac\%_{0,1})$$

In the second year, the support measures no longer have any effect, and the owner then receives an income based on the net rental value increased by rent indexation and reduced by management costs, adjusted for the vacancy rate:

$$(3)\ noi_{1,2} = (nrv_{1,2}.(1 + ri\%_{1,2}) - mc_{1,2}).(1 - vac\%_{1,2})$$

In the third year, the support measures no longer have any effect, and the landlord receives an income based on the net rental value increased by rent indexation and reduced by management costs, adjusted for the vacancy rate:

$$(4)\ noi_{2,3} = (nrv_{2,3}.(1 + ri\%_{2,3}) - mc_{2,3}).(1 - vac\%_{2,3})$$

Taking account of rent indexation only

Let's start with the simplest element, taking rent indexation into account.

In order to study only the impact of rent indexation, we assume the following simplifying hypotheses:
- **no support measure ($asm\% = 0$)**
- **no management cost ($mc = 0$)**
- **no vacancy rate ($vac\% = 0$)**

The net operating income, in levels (noi), from equations (2) to (4) can then be written as follows:

$$(5)\ noi_{0,1} = nrv_{0,1}$$
$$(6)\ noi_{1,2} = nrv_{0,1}.(1 + ri\%_{1,2})$$
$$(7)\ noi_{2,3} = nrv_{1,2}.(1 + ri\%_{2,3})$$

And so the growth rate of net operating income ($noi\%$) is written:

$$(8)\ (1 + noi\%_{1,2}) = \frac{nrv_{1,2}}{nrv_{0,1}} = \frac{nrv_{0,1}.(1 + ri\%_{1,2})}{nrv_{0,1}} = (1 + ri\%_{1,2})$$

$$(9)\ \leftrightarrow\ noi\%_{1,2} = ri\%_{1,2}$$

In the general case we find:

$$(10) \quad \leftrightarrow \quad noi\%_{t,t+1} = ri\%_{t,t+1}$$

Under simplifying assumptions, the rate of growth in net operating income is equal to the rate of rent indexation.

It is therefore not surprising that the dynamics of net operating income (source MSCI) and the rent indexation index are similar (see Chronicle 10).

The next Chronicle will look at the impact of the support measures.