

# Solvabilité II : Calibration des chocs de capital de solvabilité requis avec expected shortfall.

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Master 2 Actuariat

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Projet de fin d'année basé sur l'article "Solvency II solvency capital requirement for life insurance companies based on expected shortfall" de Tim J. Boonen publié en Octobre 2017.

## 1 INTRODUCTION

Academic workflow, certainly in political science, is at a crossroads. The *American Journal of Political Science* (*AJPS*) announced a (my words) "[show your work](#)" initiative in which authors who are tentatively accepted for publication at the journal must hand over the raw code and data that produced the results shown in the manuscript. The editorial team at *AJPS* then reproduces the code from the manuscript. Pending successful replication, the manuscript moves toward publication. The *AJPS* might be at the fore of this movement, and it could be the most aggressive among political science journals, but other journals in our field have signed the joint [Data Access & Research Transparency](#) (DART) initiative. This, at a bare minimum, requires uploading code from quantitatively-oriented published articles to in-house directories hosted by the journal or to services like [Dataverse](#).

## 2 SOLVABILITE 2

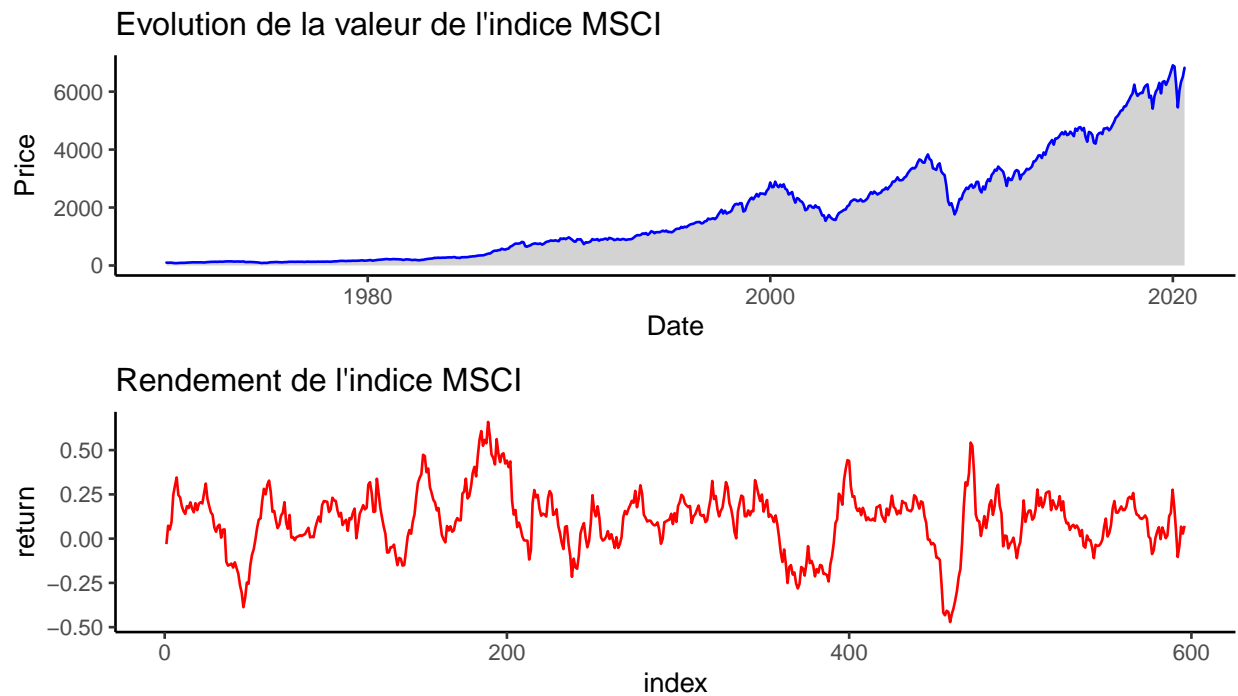
### 3 MODELE DE L'ARTICLE : ESPECTED SHORTFALL POUR LA CALIBRATION DES CHOCS DE CALCUL DU SCR (CSR)

#### 3.1 DESCRIPTION

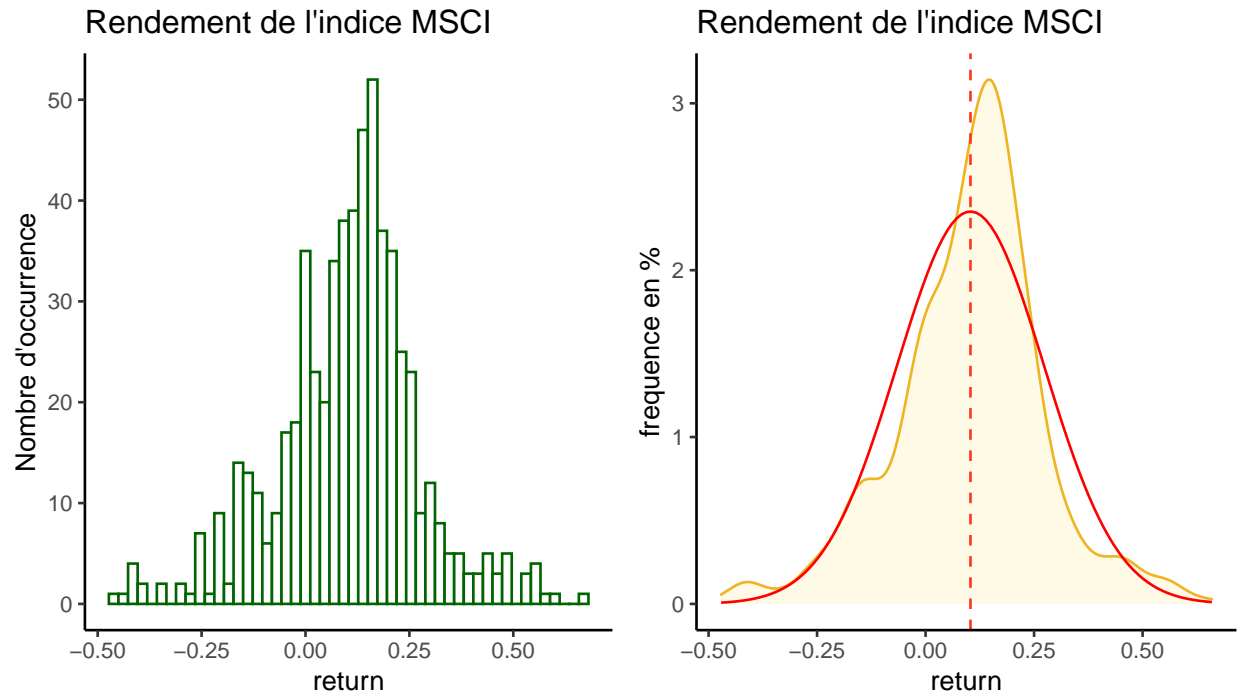
#### 3.2 MODELE DE CALIBRATION DES CHOCS DE CAPITAL DE SOLVABILITE REQUIS

##### 3.2.1 CALIBRATION DU CHOC SUR LES ACTIONS

Calibration du choc scr sur les actions



Distribution des rendements



Value at risque historique sur les données de rendements annualisées

	x
0%	0.8104
0.05%	0.8104
0.5%	0.8677
1%	0.8899
2.5%	0.9118
50%	1.0115
97.5%	1.0901
99%	1.1034
99.5%	1.1122
99.95%	1.1458
100%	1.1458

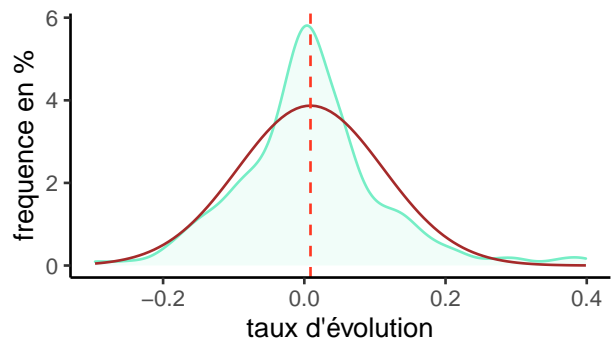
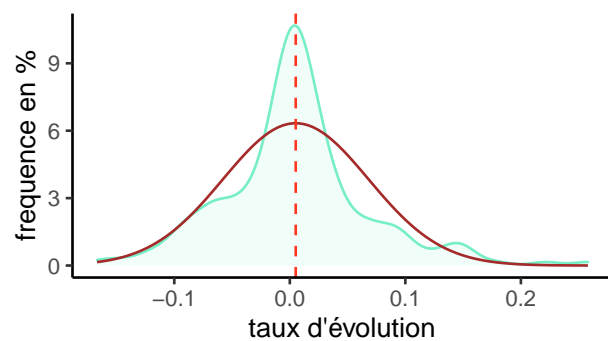
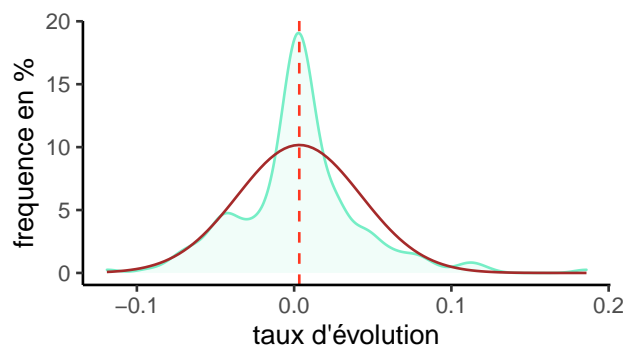
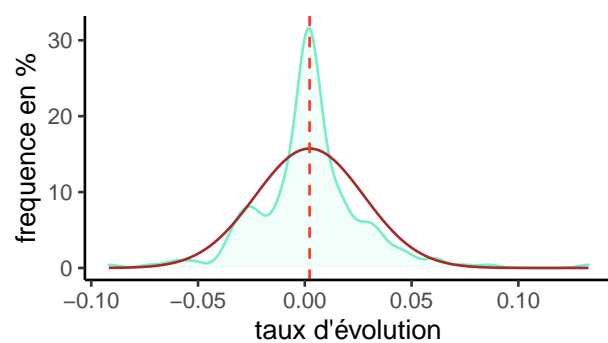
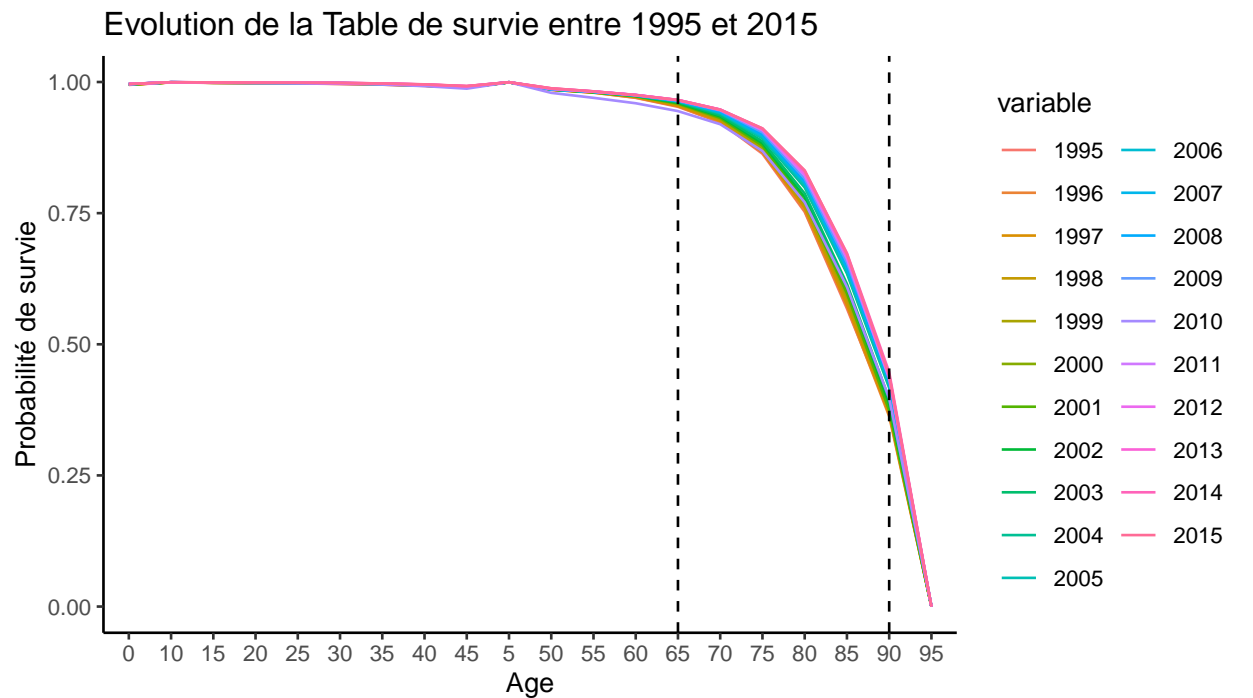
Value at risque d'une loi normale théorique

```
## [1] -Inf 0.8678 0.8982 0.9088 0.9244 1.0079 1.0914 1.1070 1.1176 1.1480
## [11] Inf

## [1] 0.8436
```

### 3.2.2 CALIBRATION DU CHOC SUR LES TAUX

### 3.2.3 CALIBRATION DU CHOC SUR LA LONGEVITE



## 4 THEORIE DES VALEURS EXTREMES POUR LA CALIBRATION DES CHOCS

## 5 CONCLUSION

## 6 REFERENCES

## 7 ANNEXES avec codes, figures en plus etc.).

### 7.1 packages R

### 7.2 articles