Results and Output of Premium Capping Schemes

Dr. Markos Mitsos
markos.mitsos@ergo.de

Deutsche Krankenversicherung AG DKV - ERGO, Actuarial Department

APL Germany — Köln

ERGO

About

Type of presentation:

- important practical application
- collection of reports and results

About

Type of presentation:

- important practical application
- collection of reports and results

About

Type of presentation:

- important practical application
- collection of reports and results

About

Type of presentation:

- important practical application
- collection of reports and results

What about:

- extract correct answers to divers questions
- provide meaningful reports out of data jungle

ERGO

About

Type of presentation:

- important practical application
- collection of reports and results

What about:

- extract correct answers to divers questions
- provide meaningful reports out of data jungle

About

Type of presentation:

- important practical application
- collection of reports and results

What about:

- extract correct answers to divers questions
- provide meaningful reports out of data jungle

ERGO

Outline

ERGO

Outline

ERGO

Outline

ERGO

Outline

ERGO

Outline

ERGO

Outline of section on recalculation

In this recapitulating section we recall:

Premium recalculation how individual premiums are adjusted to new actuarial assumptions

Capping schemes how premium are increases are capped and at what cost and risk

Outline of section on recalculation

In this recapitulating section we recall:

Premium recalculation how individual premiums are adjusted to new actuarial assumptions

Capping schemes how premium are increases are capped and at what cost and risk

Outline of section on recalculation

In this recapitulating section we recall:

Premium recalculation how individual premiums are adjusted to new actuarial assumptions

Capping schemes how premium are increases are capped and at what cost and risk

Outline of section on recalculation

In this recapitulating section we recall:

Premium recalculation how individual premiums are adjusted to new actuarial assumptions

Capping schemes how premium are increases are capped and at what cost and risk

All processes presented after agreement and/or supervised by independent trustee / BAFin / auditors !

Rules for adjustment of actuarial assumptions

Are premiums forever?

- each year compulsory check of K_x versus real claims
  - if results within ±5% of each other no recalculation
  - outside ±10% compulsory recalculation
- each year compulsory check of q_x versus real mortality rates
  - if results outside ±5% of each other compulsory recalculation
- no check on lapse rates w_x or interest rate i, company risk

Rules for adjustment of actuarial assumptions

Are premiums forever?

- each year compulsory check of K_x versus real claims
  - if results within ±5% of each other no recalculation
  - outside ±10% compulsory recalculation
- each year compulsory check of q_x versus real mortality rates
  - if results outside ±5% of each other compulsory recalculation
- no check on lapse rates w_x or interest rate i, company risk

Rules for adjustment of actuarial assumptions

Are premiums forever?

- each year compulsory check of K_x versus real claims
  - if results within ±5% of each other no recalculation
  - outside ±10% compulsory recalculation
- each year compulsory check of q_x versus real mortality rates
  - if results outside ±5% of each other compulsory recalculation
- no check on lapse rates w_x or interest rate i, company risk

Rules for adjustment of actuarial assumptions

Are premiums forever?

- each year compulsory check of K_x versus real claims
  - if results within ±5% of each other no recalculation
  - outside ±10% compulsory recalculation
- each year compulsory check of q_x versus real mortality rates
  - if results outside ±5% of each other compulsory recalculation
- no check on lapse rates w_x or interest rate i, company risk

Rules for adjustment of actuarial assumptions

Are premiums forever?

- each year compulsory check of K_x versus real claims
  - if results within ±5% of each other no recalculation
  - outside ±10% compulsory recalculation
- each year compulsory check of q_x versus real mortality rates
  - if results outside ±5% of each other compulsory recalculation
- no check on lapse rates w_x or interest rate i, company risk

Rules for adjustment of actuarial assumptions

Are premiums forever?

- each year compulsory check of K_x versus real claims
  - if results within ±5% of each other no recalculation
  - outside ±10% compulsory recalculation
- each year compulsory check of q_x versus real mortality rates
  - if results outside ±5% of each other compulsory recalculation
- no check on lapse rates w_x or interest rate i, company risk

Rules for adjustment of actuarial assumptions

Are premiums forever?

- each year compulsory check of K_x versus real claims
  - if results within ±5% of each other no recalculation
  - outside ±10% compulsory recalculation
- each year compulsory check of q_x versus real mortality rates
  - if results outside ±5% of each other compulsory recalculation
- no check on lapse rates w_x or interest rate i, company risk

Rules for adjustment of actuarial assumptions

Are premiums forever?

- each year compulsory check of K_x versus real claims
  - if results within ±5% of each other no recalculation
  - outside ±10% compulsory recalculation
- each year compulsory check of q_x versus real mortality rates
  - if results outside ±5% of each other compulsory recalculation
- no check on lapse rates w_x or interest rate i, company risk

The recalculation of premiums is a very tightly regulated process.

ERGO

Recalculation of individual premiums

What do new premiums mean for business in force?

- principle is that (benefit) reserve V defines everything
- calculate ${}_mV_x$ accumulated in the m years passed since contract time
- fix sum, it encapsulates the "rights" of the insured person
- use new annuities to define an individual, permanent discount h financed by reserve
- define new individual premium as $b = b_{x+m} - h$

Recalculation of individual premiums

What do new premiums mean for business in force?

- principle is that (benefit) reserve V defines everything
- calculate ${}_{m}V_{x}$ accumulated in the m years passed since contract time
- fix sum, it encapsulates the "rights" of the insured person
- use new annuities to define an individual, permanent discount h financed by reserve
- define new individual premium as $b = b_{x+m} - h$

Recalculation of individual premiums

What do new premiums mean for business in force?

- principle is that (benefit) reserve V defines everything
- calculate ${}_m V_x$ accumulated in the m years passed since contract time
- fix sum, it encapsulates the "rights" of the insured person
- use new annuities to define an individual, permanent discount h financed by reserve
- define new individual premium as $b = b_{x+m} - h$

Recalculation of individual premiums

What do new premiums mean for business in force?

- principle is that (benefit) reserve V defines everything
- calculate ${}_m V_x$ accumulated in the m years passed since contract time
- fix sum, it encapsulates the "rights" of the insured person
- use new annuities to define an individual, permanent discount h financed by reserve
- define new individual premium as $b = b_{x+m} - h$

Recalculation of individual premiums

What do new premiums mean for business in force?

- principle is that (benefit) reserve V defines everything
- calculate ${}_m V_x$ accumulated in the m years passed since contract time
- fix sum, it encapsulates the "rights" of the insured person
- use new annuities to define an individual, permanent discount h financed by reserve
- define new individual premium as $b = b_{x+m} - h$

Recalculation of individual premiums

What do new premiums mean for business in force?

- principle is that (benefit) reserve V defines everything
- calculate ${}_m V_x$ accumulated in the m years passed since contract time
- fix sum, it encapsulates the "rights" of the insured person
- use new annuities to define an individual, permanent discount h financed by reserve
- define new individual premium as $b = b_{x+m} - h$

Recalculation of individual premiums

What do new premiums mean for business in force?

- principle is that (benefit) reserve V defines everything
- calculate ${}_m V_x$ accumulated in the m years passed since contract time
- fix sum, it encapsulates the "rights" of the insured person
- use new annuities to define an individual, permanent discount h financed by reserve
- define new individual premium as $b = b_{x+m} - h$

Very high and very individual premium increases possible.

▸ illustration

The idea of capping premium increases

We know that during recalculation individual premium increases Δb may be huge:

- fix some rules for the maximally allowed increase
- calculate the desired (new) discount Δh to fulfil rules
- price it to ΔV (using standard actuarial formula)
- inject ΔV into the reserve

The idea of capping premium increases

We know that during recalculation individual premium increases Δb may be huge:

- fix some rules for the maximally allowed increase
- calculate the desired (new) discount Δh to fulfil rules
- price it to ΔV (using standard actuarial formula)
- inject ΔV into the reserve

The idea of capping premium increases

We know that during recalculation individual premium increases Δb may be huge:

- fix some rules for the maximally allowed increase
- calculate the desired (new) discount Δh to fulfil rules
- price it to ΔV (using standard actuarial formula)
- inject ΔV into the reserve

The idea of capping premium increases

We know that during recalculation individual premium increases Δb may be huge:

- fix some rules for the maximally allowed increase
- calculate the desired (new) discount Δh to fulfil rules
- price it to ΔV (using standard actuarial formula)
- inject ΔV into the reserve

The idea of capping premium increases

We know that during recalculation individual premium increases Δb may be huge:

- fix some rules for the maximally allowed increase
- calculate the desired (new) discount Δh to fulfil rules
- price it to ΔV (using standard actuarial formula)
- inject ΔV into the reserve

The idea of capping premium increases

We know that during recalculation individual premium increases Δb may be huge:

- fix some rules for the maximally allowed increase
- calculate the desired (new) discount Δh to fulfil rules
- price it to ΔV (using standard actuarial formula)
- inject ΔV into the reserve

The idea is to avoid financial hardship by capping increases.

▸ illustration

Financing capping schemes

We want to use surplus, more specifically RfB, for capping. We must

- create some objective capping rules (depending on plan, gender, age, . . .)
- persuade the independent trustee that the resulting benefits are fairly distributed
- price the cost
- reach agreement with the trustee and implement the rules

Such a set of rules is called capping scheme or model.

surplus (older) surplus

The problem (but not for APL!): the cost is part of the agreement and must be based on (afore hand) simulation.

ERGO

Financing capping schemes

We want to use surplus, more specifically RfB, for capping. We must

- create some objective capping rules (depending on plan, gender, age, . . .)
- persuade the independent trustee that the resulting benefits are fairly distributed
- price the cost
- reach agreement with the trustee and implement the rules

Such a set of rules is called capping scheme or model.

surplus (older) surplus

The problem (but not for APL!): the cost is part of the agreement and must be based on (afore hand) simulation.

ERGO

Financing capping schemes

We want to use surplus, more specifically RfB, for capping. We must

- create some objective capping rules (depending on plan, gender, age, . . .)
- persuade the independent trustee that the resulting benefits are fairly distributed
- price the cost
- reach agreement with the trustee and implement the rules

Such a set of rules is called capping scheme or model.

surplus (older) surplus

The problem (but not for APL!): the cost is part of the agreement and must be based on (afore hand) simulation.

ERGO

Financing capping schemes

We want to use surplus, more specifically RfB, for capping. We must

- create some objective capping rules (depending on plan, gender, age, . . .)
- persuade the independent trustee that the resulting benefits are fairly distributed
- price the cost
- reach agreement with the trustee and implement the rules

Such a set of rules is called capping scheme or model.

surplus (older) surplus

The problem (but not for APL!): the cost is part of the agreement and must be based on (afore hand) simulation.

ERGO

Financing capping schemes

We want to use surplus, more specifically RfB, for capping. We must

- create some objective capping rules (depending on plan, gender, age, . . .)
- persuade the independent trustee that the resulting benefits are fairly distributed
- price the cost
- reach agreement with the trustee and implement the rules

Such a set of rules is called capping scheme or model.

surplus (older) surplus

The problem (but not for APL!): the cost is part of the agreement and must be based on (afore hand) simulation.

Financing capping schemes

We want to use surplus, more specifically RfB, for capping. We must

- create some objective capping rules (depending on plan, gender, age, . . .)
- persuade the independent trustee that the resulting benefits are fairly distributed
- price the cost
- reach agreement with the trustee and implement the rules

Such a set of rules is called capping scheme or model.

▸ surplus (older) ▸ surplus

The problem (but not for APL!): the cost is part of the agreement and must be based on (afore hand) simulation.

Financing capping schemes

We want to use surplus, more specifically RfB, for capping. We must

- create some objective capping rules (depending on plan, gender, age, . . .)
- persuade the independent trustee that the resulting benefits are fairly distributed
- price the cost
- reach agreement with the trustee and implement the rules

Such a set of rules is called capping scheme or model.

▸ surplus (older) ▸ surplus

The problem (but not for APL!): the cost is part of the agreement and must be based on (afore hand) simulation.

ERGO

Outline of main results section

In this section we give an overview of the main results and reports:

- **Output to Excel** why the impact of a scheme is presented in Excel
- **Predefined reports** preparing a range of predefined reports

Outline of main results section

In this section we give an overview of the main results and reports:

Output to Excel why the impact of a scheme is presented in Excel

Predefined reports preparing a range of predefined reports

Outline of main results section

In this section we give an overview of the main results and reports:

- **Output to Excel** why the impact of a scheme is presented in Excel
- **Predefined reports** preparing a range of predefined reports

Outline of main results section

In this section we give an overview of the main results and reports:

- Output to Excel — why the impact of a scheme is presented in Excel
- Predefined reports — preparing a range of predefined reports

Objective: balance flexibility with correctness.

To much information can be bad

Results of a capping scheme

- for each individual plan, meaning more than 10 million rows
- depending on granularity 40 to 150 data points per rows
- contents only clear with full understanding
- practically impossible to to create ad hoc reports
- saving all data in SQL server database would be harmful

Compromise between flexibility, compatibility with previous results and exactness: only Excel workbooks as results.

To much information can be bad

Results of a capping scheme

- for each individual plan, meaning more than 10 million rows
- depending on granularity 40 to 150 data points per rows
- contents only clear with full understanding
- practically impossible to to create ad hoc reports
- saving all data in SQL server database would be harmful

Compromise between flexibility, compatibility with previous results and exactness: only Excel workbooks as results.

To much information can be bad

Results of a capping scheme

- for each individual plan, meaning more than 10 million rows
- depending on granularity 40 to 150 data points per rows
- contents only clear with full understanding
- practically impossible to to create ad hoc reports
- saving all data in SQL server database would be harmful

Compromise between flexibility, compatibility with previous results and exactness: only Excel workbooks as results.

To much information can be bad

Results of a capping scheme

- for each individual plan, meaning more than 10 million rows
- depending on granularity 40 to 150 data points per rows
- contents only clear with full understanding
- practically impossible to to create ad hoc reports
- saving all data in SQL server database would be harmful

Compromise between flexibility, compatibility with previous results and exactness: only Excel workbooks as results.

ERGO

To much information can be bad

Results of a capping scheme

- for each individual plan, meaning more than 10 million rows
- depending on granularity 40 to 150 data points per rows
- contents only clear with full understanding
- practically impossible to to create ad hoc reports
- saving all data in SQL server database would be harmful

Compromise between flexibility, compatibility with previous results and exactness: only Excel workbooks as results.

To much information can be bad

Results of a capping scheme

- for each individual plan, meaning more than 10 million rows
- depending on granularity 40 to 150 data points per rows
- contents only clear with full understanding
- practically impossible to to create ad hoc reports
- saving all data in SQL server database would be harmful

Compromise between flexibility, compatibility with previous results and exactness: only Excel workbooks as results.

ERGO

To much information can be bad

Results of a capping scheme

- for each individual plan, meaning more than 10 million rows
- depending on granularity 40 to 150 data points per rows
- contents only clear with full understanding
- practically impossible to to create ad hoc reports
- saving all data in SQL server database would be harmful

Compromise between flexibility, compatibility with previous results and exactness: only Excel workbooks as results.

ERGO

Examples of ambiguity

Necessity for "constrained flexibility"

- something like 10 different "premium" definitions
- premium for capping not the same as what insured persons see
- person counts relevant for trustee completely different from number of letters
- extremal values (minima/maxima) almost invariably due to errors in contracts

Quick answers to simple questions can be misleading.

Examples of ambiguity

Necessity for "constrained flexibility"

- something like 10 different "premium" definitions
- premium for capping not the same as what insured persons see
- person counts relevant for trustee completely different from number of letters
- extremal values (minima/maxima) almost invariably due to errors in contracts

Quick answers to simple questions can be misleading.

Examples of ambiguity

Necessity for "constrained flexibility"

- something like 10 different "premium" definitions
- premium for capping not the same as what insured persons see
- person counts relevant for trustee completely different from number of letters
- extremal values (minima/maxima) almost invariably due to errors in contracts

Quick answers to simple questions can be misleading.

Examples of ambiguity

Necessity for "constrained flexibility"

- something like 10 different "premium" definitions
- premium for capping not the same as what insured persons see
- person counts relevant for trustee completely different from number of letters
- extremal values (minima/maxima) almost invariably due to errors in contracts

Quick answers to simple questions can be misleading.

Examples of ambiguity

Necessity for "constrained flexibility"

- something like 10 different "premium" definitions
- premium for capping not the same as what insured persons see
- person counts relevant for trustee completely different from number of letters
- extremal values (minima/maxima) almost invariably due to errors in contracts

Quick answers to simple questions can be misleading.

Examples of ambiguity

Necessity for "constrained flexibility"

- something like 10 different "premium" definitions
- premium for capping not the same as what insured persons see
- person counts relevant for trustee completely different from number of letters
- extremal values (minima/maxima) almost invariably due to errors in contracts

Quick answers to simple questions can be misleading.

Results presented in Excel

Absolutely necessary results:

- price of capping
- premium increase and its distribution
- various person counts, premium (increases) and changes in reserve (including minimum necessary for board / trustee)
- various mean values
- various percentile values
- various distributions in matrix form (including minimum necessary for trustee)
- special information (§12a(3), letters)

Results presented in Excel

Absolutely necessary results:

- price of capping
- premium increase and its distribution
- various person counts, premium (increases) and changes in reserve (including minimum necessary for board / trustee)
- various mean values
- various percentile values
- various distributions in matrix form (including minimum necessary for trustee)
- special information (§12a(3), letters)

Results presented in Excel

Absolutely necessary results:

- price of capping
- premium increase and its distribution

- various person counts, premium (increases) and changes in reserve (including minimum necessary for board / trustee)
- various mean values
- various percentile values
- various distributions in matrix form (including minimum necessary for trustee)
- special information (§12a(3), letters)

Results presented in Excel

Absolutely necessary results:

- price of capping
- premium increase and its distribution

Produced reports, all of them agglomerated on various levels:

- various person counts, premium (increases) and changes in reserve (including minimum necessary for board / trustee)
- various mean values
- various percentile values
- various distributions in matrix form (including minimum necessary for trustee)
- special information (§12a(3), letters)

ERGO

Results presented in Excel

Absolutely necessary results:

- price of capping
- premium increase and its distribution

Produced reports, all of them agglomerated on various levels:

- various person counts, premium (increases) and changes in reserve (including minimum necessary for board / trustee)
- various mean values
- various percentile values
- various distributions in matrix form (including minimum necessary for trustee)
- special information (§12a(3), letters)

Results presented in Excel

Absolutely necessary results:

- price of capping
- premium increase and its distribution

Produced reports, all of them agglomerated on various levels:

- various person counts, premium (increases) and changes in reserve (including minimum necessary for board / trustee)
- various mean values
- various percentile values
- various distributions in matrix form (including minimum necessary for trustee)
- special information (§12a(3), letters)

ERGO

Results presented in Excel

Absolutely necessary results:

- price of capping
- premium increase and its distribution

Produced reports, all of them agglomerated on various levels:

- various person counts, premium (increases) and changes in reserve (including minimum necessary for board / trustee)
- various mean values
- various percentile values
- various distributions in matrix form (including minimum necessary for trustee)
- special information (§12a(3), letters)

ERGO

Results presented in Excel

Absolutely necessary results:

- price of capping
- premium increase and its distribution

Produced reports, all of them agglomerated on various levels:

- various person counts, premium (increases) and changes in reserve (including minimum necessary for board / trustee)
- various mean values
- various percentile values
- various distributions in matrix form (including minimum necessary for trustee)
- special information (§12a(3), letters)

ERGO

Results presented in Excel

Absolutely necessary results:

- price of capping
- premium increase and its distribution

Produced reports, all of them agglomerated on various levels:

- various person counts, premium (increases) and changes in reserve (including minimum necessary for board / trustee)
- various mean values
- various percentile values
- various distributions in matrix form (including minimum necessary for trustee)
- special information (§12a(3), letters)

ERGO

Results presented in Excel

Absolutely necessary results:

- price of capping
- premium increase and its distribution

Produced reports, all of them agglomerated on various levels:

- various person counts, premium (increases) and changes in reserve (including minimum necessary for board / trustee)
- various mean values
- various percentile values
- various distributions in matrix form (including minimum necessary for trustee)
- special information (§12a(3), letters)

Many reports for each scheme ▸ folder

Outline of section on individual contracts and other analysis tools

In this section we give an overview of the analysis of capping results:

Individual contracts some questions best answered with a list of individual contracts

Older tools analysis tools that are momentarily not used (or maintained!)

Outline of section on individual contracts and other analysis tools

In this section we give an overview of the analysis of capping results:

Individual contracts some questions best answered with a list of individual contracts

Older tools analysis tools that are momentarily not used (or maintained!)

Outline of section on individual contracts and other analysis tools

In this section we give an overview of the analysis of capping results:

Individual contracts some questions best answered with a list of individual contracts

Older tools analysis tools that are momentarily not used (or maintained!)

Outline of section on individual contracts and other analysis tools

In this section we give an overview of the analysis of capping results:

Individual contracts some questions best answered with a list of individual contracts

Older tools analysis tools that are momentarily not used (or maintained!)

Objective: just a wink to people how dislike component files. . .

Additional questions (there are allways some!)

Typical sources of additional questions:

- independent trustee
- board of executives, management

- are there any cases with premium increase more than x?
- how can it be that there are more cases with recalculation than increase although. . . ?

Additional questions (there are allways some!)

Typical sources of additional questions:

- independent trustee
- board of executives, management

- are there any cases with premium increase more than x?
- how can it be that there are more cases with recalculation than increase although. . . ?

Additional questions (there are allways some!)

Typical sources of additional questions:

- independent trustee
- board of executives, management

- are there any cases with premium increase more than x?
- how can it be that there are more cases with recalculation than increase although. . . ?

Additional questions (there are allways some!)

Typical sources of additional questions:

- independent trustee
- board of executives, management

Typical questions:

- are there any cases with premium increase more than x?
- how can it be that there are more cases with recalculation than increase although. . . ?

Additional questions (there are allways some!)

Typical sources of additional questions:

- independent trustee
- board of executives, management

Typical questions:

- are there any cases with premium increase more than x?
- how can it be that there are more cases with recalculation than increase although. . . ?

Additional questions (there are allways some!)

Typical sources of additional questions:

- independent trustee
- board of executives, management

Typical questions:

- are there any cases with premium increase more than x?
- how can it be that there are more cases with recalculation than increase although. . . ?

Additional questions (there are allways some!)

Typical sources of additional questions:

- independent trustee
- board of executives, management

Typical questions:

- are there any cases with premium increase more than x?
- how can it be that there are more cases with recalculation than increase although. . . ?

Additional questions (there are allways some!)

Typical sources of additional questions:

- independent trustee
- board of executives, management

Typical questions:

- are there any cases with premium increase more than x?
- how can it be that there are more cases with recalculation than increase although...?

Such questions are best answered with a list of interesting cases.

Formal tests during process of software release

Process of mainframe software release

- extensive staged testing
- transfer of programs, tables et al to production
- stability test to establish correct version
- business as usual

Formal tests during process of software release

Process of mainframe software release

- extensive staged testing
- transfer of programs, tables et al to production
- stability test to establish correct version
- business as usual

Formal tests during process of software release

Process of mainframe software release

- extensive staged testing
- transfer of programs, tables et al to production
- stability test to establish correct version
- business as usual

Formal tests during process of software release

Process of mainframe software release

- extensive staged testing
- transfer of programs, tables et al to production
- stability test to establish correct version
- business as usual

Formal tests during process of software release

Process of mainframe software release

- extensive staged testing
- transfer of programs, tables et al to production
- stability test to establish correct version
- business as usual

Formal tests during process of software release

Process of mainframe software release

- extensive staged testing
- transfer of programs, tables et al to production
- stability test to establish correct version
- business as usual

Automation of formal selection of test cases specific to last changes necessary.

Tools for further analysis

Some functionalities are not used (at the moment)

- presentation of circa 1.000 schemes in a GUI (estimator more flexible)
- comparison of a number of schemes (more cumbersome that estimator)
- graphical presentation of capping results (no such depth of "feeling" needed. . .)

Tools for further analysis

Some functionalities are not used (at the moment)

- presentation of circa 1.000 schemes in a GUI (estimator more flexible)
- comparison of a number of schemes (more cumbersome that estimator)
- graphical presentation of capping results (no such depth of "feeling" needed. . .)

Tools for further analysis

Some functionalities are not used (at the moment)

- presentation of circa 1.000 schemes in a GUI (estimator more flexible)
- comparison of a number of schemes (more cumbersome that estimator)
- graphical presentation of capping results (no such depth of "feeling" needed. . .)

Tools for further analysis

Some functionalities are not used (at the moment)

- presentation of circa 1.000 schemes in a GUI (estimator more flexible)
- comparison of a number of schemes (more cumbersome that estimator)
- graphical presentation of capping results (no such depth of "feeling" needed...)

Tools for further analysis

Some functionalities are not used (at the moment)

- presentation of circa 1.000 schemes in a GUI (estimator more flexible)
- comparison of a number of schemes (more cumbersome that estimator)
- graphical presentation of capping results (no such depth of "feeling" needed. . .)

Functionalities could be erased or brought up to present.

Outline of "estimator" section

In this section we give an overview of the interactive estimation of costs:

Agglomeration approximating the cost of a capping scheme

Estimator interactively building schemes and estimating their cost

Export providing schemes to mainframe programs

Outline of "estimator" section

In this section we give an overview of the interactive estimation of costs:

Agglomeration approximating the cost of a capping scheme

Estimator interactively building schemes and estimating their cost

Export providing schemes to mainframe programs

Outline of "estimator" section

In this section we give an overview of the interactive estimation of costs:

Agglomeration approximating the cost of a capping scheme

Estimator interactively building schemes and estimating their cost

Export providing schemes to mainframe programs

Outline of "estimator" section

In this section we give an overview of the interactive estimation of costs:

Agglomeration approximating the cost of a capping scheme

Estimator interactively building schemes and estimating their cost

Export providing schemes to mainframe programs

Outline of "estimator" section

In this section we give an overview of the interactive estimation of costs:

Agglomeration approximating the cost of a capping scheme

Estimator interactively building schemes and estimating their cost

Export providing schemes to mainframe programs

Objective: quickly build and export useful capping schemes.

How to be faster and even more flexible?

Pricing of a model is fast and flexible:

- a matter of minutes rather than hours — but how to go down to seconds?
- good information on one model — but comparison of similar models cumbersome
- create appropriate agglomeration and price it:
  - similar premium and premium increase lead to similar behaviour under capping scheme
  - additionally defining keys of the scheme must be included
  - some details (social capping) must be ignored or handled across-the-board beforehand

How to be faster and even more flexible?

Pricing of a model is fast and flexible:

- a matter of minutes rather than hours — but how to go down to seconds?
- good information on one model — but comparison of similar models cumbersome
- create appropriate agglomeration and price it:
  - similar premium and premium increase lead to similar behaviour under capping scheme
  - additionally defining keys of the scheme must be included
  - some details (social capping) must be ignored or handled across-the-board beforehand

How to be faster and even more flexible?

Pricing of a model is fast and flexible:

- a matter of minutes rather than hours — but how to go down to seconds?
- good information on one model — but comparison of similar models cumbersome
- create appropriate agglomeration and price it:
  - similar premium and premium increase lead to similar behaviour under capping scheme
  - additionally defining keys of the scheme must be included
  - some details (social capping) must be ignored or handled across-the-board beforehand

How to be faster and even more flexible?

Pricing of a model is fast and flexible:

- a matter of minutes rather than hours — but how to go down to seconds?
- good information on one model — but comparison of similar models cumbersome
- create appropriate agglomeration and price it:
  - similar premium and premium increase lead to similar behaviour under capping scheme ▸ illustration
  - additionally defining keys of the scheme must be included
  - some details (social capping) must be ignored or handled across-the-board beforehand

How to be faster and even more flexible?

Pricing of a model is fast and flexible:

- a matter of minutes rather than hours — but how to go down to seconds?
- good information on one model — but comparison of similar models cumbersome
- create appropriate agglomeration and price it:
  - similar premium and premium increase lead to similar behaviour under capping scheme ▸ illustration
  - additionally defining keys of the scheme must be included
  - some details (social capping) must be ignored or handled across-the-board beforehand

How to be faster and even more flexible?

Pricing of a model is fast and flexible:

- a matter of minutes rather than hours — but how to go down to seconds?
- good information on one model — but comparison of similar models cumbersome
- create appropriate agglomeration and price it:
  - similar premium and premium increase lead to similar behaviour under capping scheme ▸ illustration
  - additionally defining keys of the scheme must be included
  - some details (social capping) must be ignored or handled across-the-board beforehand

How to be faster and even more flexible?

Pricing of a model is fast and flexible:

- a matter of minutes rather than hours — but how to go down to seconds?
- good information on one model — but comparison of similar models cumbersome
- create appropriate agglomeration and price it:
  - similar premium and premium increase lead to similar behaviour under capping scheme ▸ illustration
  - additionally defining keys of the scheme must be included
  - some details (social capping) must be ignored or handled across-the-board beforehand

Creating capping schemes and estimating their cost

Capping schemes:

- technically simple numeric matrices
- GUI needed and used (by non-APL-ers!) to create them ▸ GUI

Creating capping schemes and estimating their cost

Capping schemes:

- technically simple numeric matrices
- GUI needed and used (by non-APL-ers!) to create them ▸ GUI

Creating capping schemes and estimating their cost

Capping schemes:

- technically simple numeric matrices
- GUI needed and used (by non-APL-ers!) to create them ▸ GUI

Creating capping schemes and estimating their cost

Capping schemes:

- technically simple numeric matrices
- GUI needed and used (by non-APL-ers!) to create them ▸ GUI

The same GUI is used to estimate their costs:

- load desired capping agglomeration
- load / create / modify / save scheme
- estimate cost of scheme

Creating capping schemes and estimating their cost

Capping schemes:

- technically simple numeric matrices
- GUI needed and used (by non-APL-ers!) to create them ▸ GUI

The same GUI is used to estimate their costs:

- load desired capping agglomeration
- load / create / modify / save scheme
- estimate cost of scheme

Creating capping schemes and estimating their cost

Capping schemes:

- technically simple numeric matrices
- GUI needed and used (by non-APL-ers!) to create them ▸ GUI

The same GUI is used to estimate their costs:

- load desired capping agglomeration
- load / create / modify / save scheme
- estimate cost of scheme

Creating capping schemes and estimating their cost

Capping schemes:

- technically simple numeric matrices
- GUI needed and used (by non-APL-ers!) to create them ▸ GUI

The same GUI is used to estimate their costs:

- load desired capping agglomeration
- load / create / modify / save scheme
- estimate cost of scheme

Testing the limits of capping

Usual question "can we treat this plan a bit better?":

- possible to try out different schemes with the estimator
- more convenient (and convincing) to give overview of possibilities
- estimate costs of perturbations on selected plan groups

Testing the limits of capping

Usual question "can we treat this plan a bit better?":

- possible to try out different schemes with the estimator
- more convenient (and convincing) to give overview of possibilities
- estimate costs of perturbations on selected plan groups

Testing the limits of capping

Usual question "can we treat this plan a bit better?":

- possible to try out different schemes with the estimator
- more convenient (and convincing) to give overview of possibilities
- estimate costs of perturbations on selected plan groups

Testing the limits of capping

Usual question "can we treat this plan a bit better?":

- possible to try out different schemes with the estimator
- more convenient (and convincing) to give overview of possibilities
- estimate costs of perturbations on selected plan groups

Testing the limits of capping

Usual question "can we treat this plan a bit better?":

- possible to try out different schemes with the estimator
- more convenient (and convincing) to give overview of possibilities
- estimate costs of perturbations on selected plan groups

Feature used interactively for immediate decisions by the board.

Defined process for transfer of capping to the mainframe

How to guarantee correct transfer to mainframe:

- fist create similar mechanisms on mainframe and in simulation (lengthy story!)
- then easy, stepping stone SQL server
- person who uses estimator gets privilege to populate SQL server table
- other person transfers scheme to mainframe vie ITERGO

Defined process for transfer of capping to the mainframe

How to guarantee correct transfer to mainframe:

- fist create similar mechanisms on mainframe and in simulation (lengthy story!)
- then easy, stepping stone SQL server
- person who uses estimator gets privilege to populate SQL server table
- other person transfers scheme to mainframe vie ITERGO

Defined process for transfer of capping to the mainframe

How to guarantee correct transfer to mainframe:

- fist create similar mechanisms on mainframe and in simulation (lengthy story!)
- then easy, stepping stone SQL server
- person who uses estimator gets privilege to populate SQL server table
- other person transfers scheme to mainframe vie ITERGO

Defined process for transfer of capping to the mainframe

How to guarantee correct transfer to mainframe:

- fist create similar mechanisms on mainframe and in simulation (lengthy story!)
- then easy, stepping stone SQL server
- person who uses estimator gets privilege to populate SQL server table
- other person transfers scheme to mainframe vie ITERGO

Defined process for transfer of capping to the mainframe

How to guarantee correct transfer to mainframe:

- fist create similar mechanisms on mainframe and in simulation (lengthy story!)
- then easy, stepping stone SQL server
- person who uses estimator gets privilege to populate SQL server table
- other person transfers scheme to mainframe vie ITERGO

Defined process for transfer of capping to the mainframe

How to guarantee correct transfer to mainframe:

- fist create similar mechanisms on mainframe and in simulation (lengthy story!)
- then easy, stepping stone SQL server
- person who uses estimator gets privilege to populate SQL server table
- other person transfers scheme to mainframe vie ITERGO

Transfer checked independently with reference system.

Outline of section on trustee information

In this section we give an overview of legally binding information on capping:

Agreement	binding agreement with trustee as prerequisite of implementation
Basis of calculation	capping scheme and defined reports as part of the basis of calculation

Outline of section on trustee information

In this section we give an overview of legally binding information on capping:

Agreement binding agreement with trustee as prerequisite of implementation

Basis of calculation capping scheme and defined reports as part of the basis of calculation

Outline of section on trustee information

In this section we give an overview of legally binding information on capping:

Agreement binding agreement with trustee as prerequisite of implementation

Basis of calculation capping scheme and defined reports as part of the basis of calculation

Outline of section on trustee information

In this section we give an overview of legally binding information on capping:

Agreement binding agreement with trustee as prerequisite of implementation

Basis of calculation capping scheme and defined reports as part of the basis of calculation

Objective: reliably create legally binding information.

Regulation and constraints regarding capping

Capping uses up money, meaning:

- cannot (in general) be financed from equity or profit
- surplus fund (RfB) is usual source
- fund can only by used after agreement with independent trustee
- on the other hand individual premium recalculation only after agreement
- agreement detailed and legally binding

Regulation and constraints regarding capping

Capping uses up money, meaning:

- cannot (in general) be financed from equity or profit
- surplus fund (RfB) is usual source
- fund can only by used after agreement with independent trustee
- on the other hand individual premium recalculation only after agreement
- agreement detailed and legally binding

Regulation and constraints regarding capping

Capping uses up money, meaning:

- cannot (in general) be financed from equity or profit
- surplus fund (RfB) is usual source
- fund can only by used after agreement with independent trustee
- on the other hand individual premium recalculation only after agreement
- agreement detailed and legally binding

Regulation and constraints regarding capping

Capping uses up money, meaning:

- cannot (in general) be financed from equity or profit
- surplus fund (RfB) is usual source
- fund can only by used after agreement with independent trustee
- on the other hand individual premium recalculation only after agreement
- agreement detailed and legally binding

Regulation and constraints regarding capping

Capping uses up money, meaning:

- cannot (in general) be financed from equity or profit
- surplus fund (RfB) is usual source
- fund can only by used after agreement with independent trustee
- on the other hand individual premium recalculation only after agreement
- agreement detailed and legally binding

Regulation and constraints regarding capping

Capping uses up money, meaning:

- cannot (in general) be financed from equity or profit
- surplus fund (RfB) is usual source
- fund can only by used after agreement with independent trustee
- on the other hand individual premium recalculation only after agreement
- agreement detailed and legally binding

Regulation and constraints regarding capping

Capping uses up money, meaning:

- cannot (in general) be financed from equity or profit
- surplus fund (RfB) is usual source
- fund can only by used after agreement with independent trustee
- on the other hand individual premium recalculation only after agreement
- agreement detailed and legally binding

The creation of the agreement document must be automated as far as possible.

Roadmap to automated creation of agreement document

In work, but greatest part implemented:

- have APL create LaTeX-Code and compile it
- prepare fixed canvas to work on
- take as much data as possible from simulation of scheme
- leave some slots for "free" text ("justification of scheme")
- leave some slots for third party contributions

ERGO

Roadmap to automated creation of agreement document

In work, but greatest part implemented:

- have APL create LaTeX-Code and compile it
- prepare fixed canvas to work on
- take as much data as possible from simulation of scheme
- leave some slots for "free" text ("justification of scheme")
- leave some slots for third party contributions

ERGO

Roadmap to automated creation of agreement document

In work, but greatest part implemented:

- have APL create LaTeX-Code and compile it
- prepare fixed canvas to work on
- take as much data as possible from simulation of scheme
- leave some slots for "free" text ("justification of scheme")
- leave some slots for third party contributions

ERGO

Roadmap to automated creation of agreement document

In work, but greatest part implemented:

- have APL create LaTeX-Code and compile it
- prepare fixed canvas to work on
- take as much data as possible from simulation of scheme
- leave some slots for "free" text ("justification of scheme")
- leave some slots for third party contributions

ERGO

Roadmap to automated creation of agreement document

In work, but greatest part implemented:

- have APL create LaTeX-Code and compile it
- prepare fixed canvas to work on
- take as much data as possible from simulation of scheme
- leave some slots for "free" text ("justification of scheme")
- leave some slots for third party contributions

Roadmap to automated creation of agreement document

In work, but greatest part implemented:

- have APL create LaTeX-Code and compile it
- prepare fixed canvas to work on
- take as much data as possible from simulation of scheme
- leave some slots for "free" text ("justification of scheme")
- leave some slots for third party contributions

ERGO

Roadmap to automated creation of agreement document

In work, but greatest part implemented:

- have APL create LaTeX-Code and compile it
- prepare fixed canvas to work on
- take as much data as possible from simulation of scheme
- leave some slots for "free" text ("justification of scheme")
- leave some slots for third party contributions

There are working prototypes but some points are still being discussed.

ERGO

Regulation regarding documentation

Each plan has official basis of calculation:

- can only be altered in agreement with legal requirements and independent trustee
- must describe plan completely
- must contain any information regulating authority or trustee demands
- must that fore describe the capping scheme as the trustee demands
- calculation basis is legally binding

Regulation regarding documentation

Each plan has official basis of calculation:

- can only be altered in agreement with legal requirements and independent trustee
- must describe plan completely
- must contain any information regulating authority or trustee demands
- must that fore describe the capping scheme as the trustee demands
- calculation basis is legally binding

Regulation regarding documentation

Each plan has official basis of calculation:

- can only be altered in agreement with legal requirements and independent trustee
- must describe plan completely
- must contain any information regulating authority or trustee demands
- must that fore describe the capping scheme as the trustee demands
- calculation basis is legally binding

Regulation regarding documentation

Each plan has official basis of calculation:

- can only be altered in agreement with legal requirements and independent trustee
- must describe plan completely
- must contain any information regulating authority or trustee demands
- must that fore describe the capping scheme as the trustee demands
- calculation basis is legally binding

Regulation regarding documentation

Each plan has official basis of calculation:

- can only be altered in agreement with legal requirements and independent trustee
- must describe plan completely
- must contain any information regulating authority or trustee demands
- must that fore describe the capping scheme as the trustee demands
- calculation basis is legally binding

Regulation regarding documentation

Each plan has official basis of calculation:

- can only be altered in agreement with legal requirements and independent trustee
- must describe plan completely
- must contain any information regulating authority or trustee demands
- must that fore describe the capping scheme as the trustee demands
- calculation basis is legally binding

Regulation regarding documentation

Each plan has official basis of calculation:

- can only be altered in agreement with legal requirements and independent trustee
- must describe plan completely
- must contain any information regulating authority or trustee demands
- must that fore describe the capping scheme as the trustee demands
- calculation basis is legally binding

The part about capping in the calculation basis has been automated as far as possible.

Conclusion

Result and impact of premium capping schemes:

- many possible questions to answer
- balance between flexibility and correctness
- reliability (and performance) a must
- extremely important for process of recalculation

Conclusion

Result and impact of premium capping schemes:

- many possible questions to answer
- balance between flexibility and correctness
- reliability (and performance) a must
- extremely important for process of recalculation

Conclusion

Result and impact of premium capping schemes:

- many possible questions to answer
- balance between flexibility and correctness
- reliability (and performance) a must
- extremely important for process of recalculation

Conclusion

Result and impact of premium capping schemes:

- many possible questions to answer
- balance between flexibility and correctness
- reliability (and performance) a must
- extremely important for process of recalculation

Conclusion

Result and impact of premium capping schemes:

- many possible questions to answer
- balance between flexibility and correctness
- reliability (and performance) a must
- extremely important for process of recalculation

Conclusion

Result and impact of premium capping schemes:

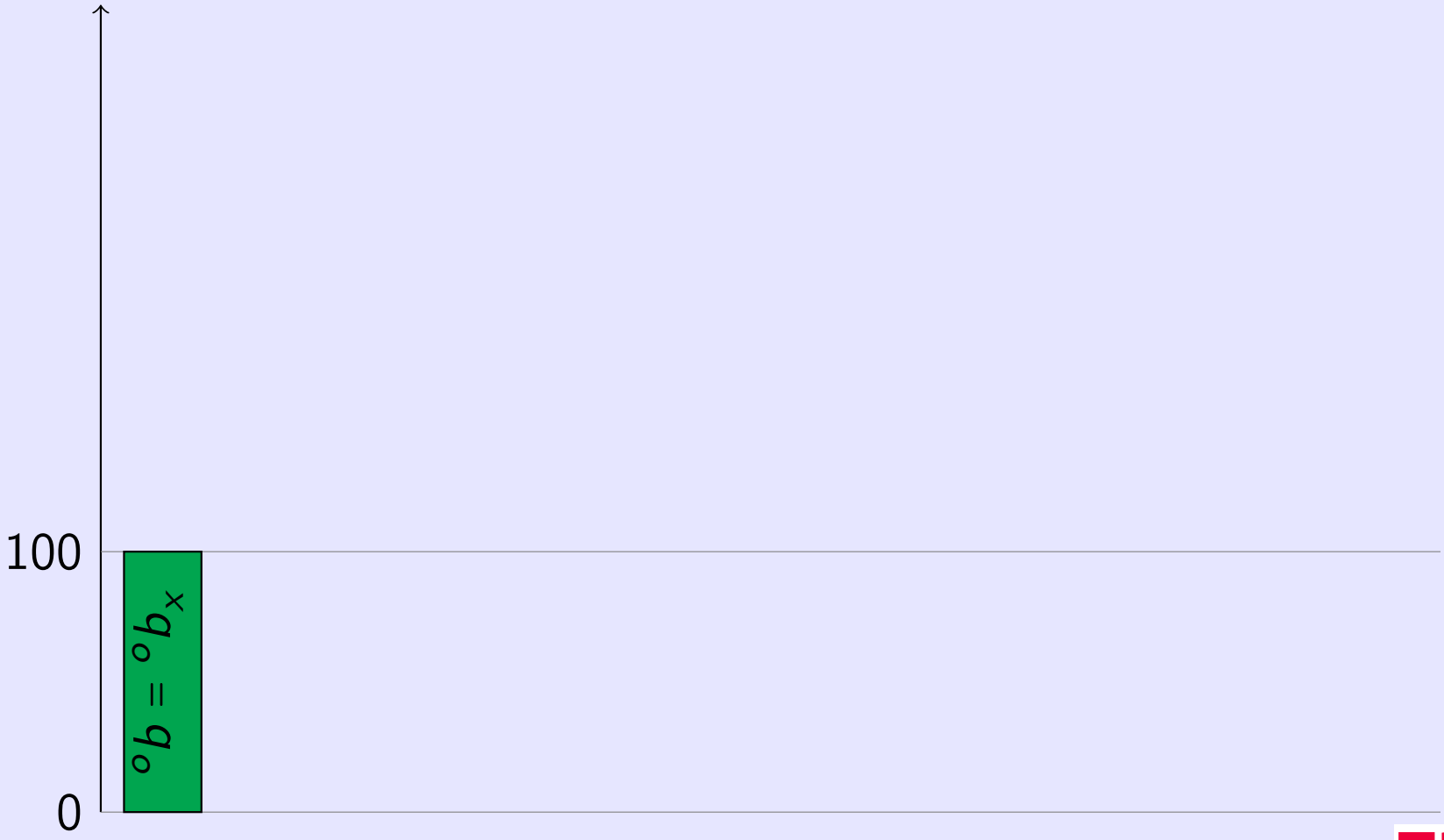
- many possible questions to answer
- balance between flexibility and correctness
- reliability (and performance) a must
- extremely important for process of recalculation

begin

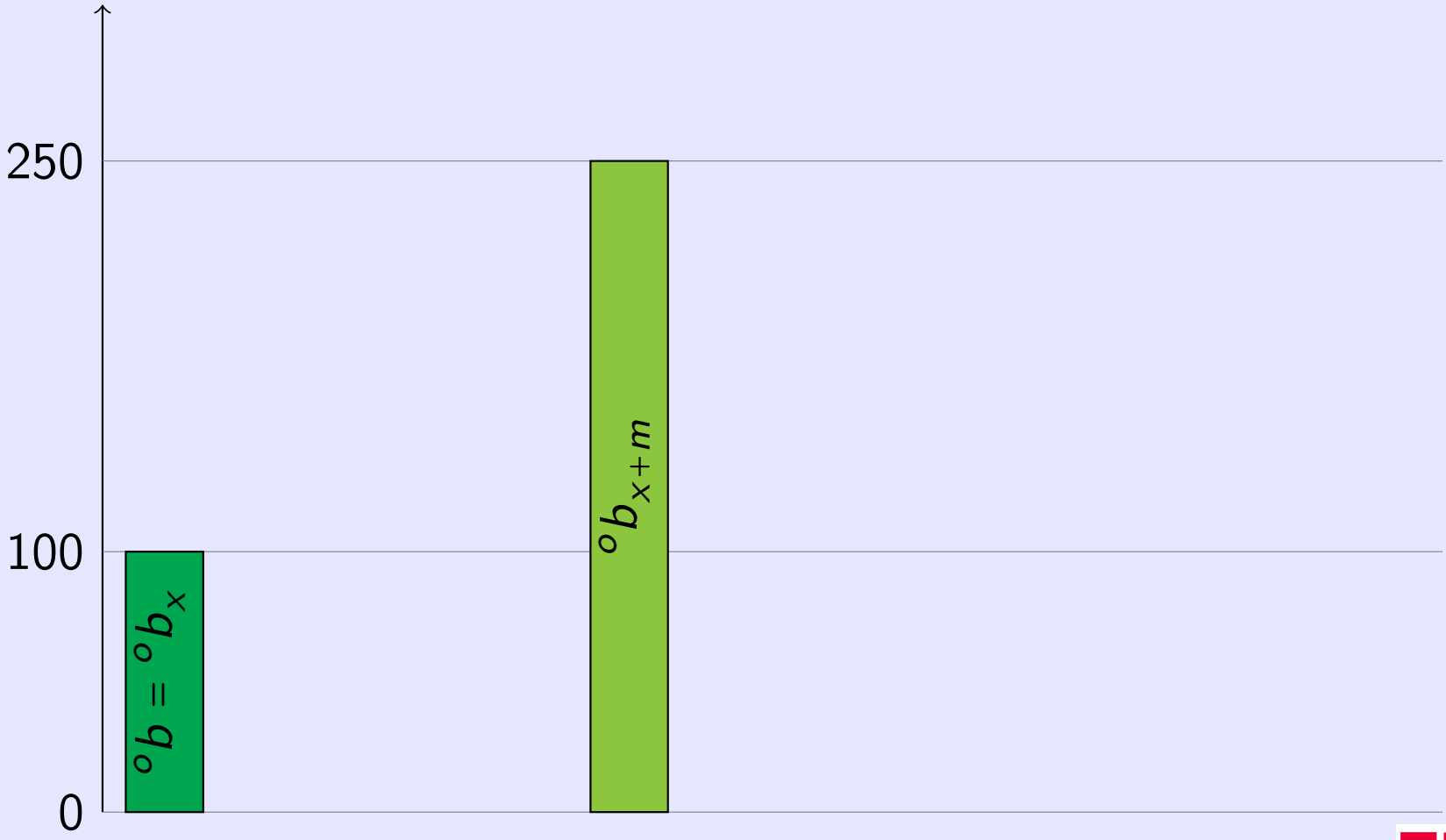
Overview of examples and illustrations

- increase
- scheme
- surplus (older)
- surplus
- results
- estimation
- estimator

Components of individual premium increase

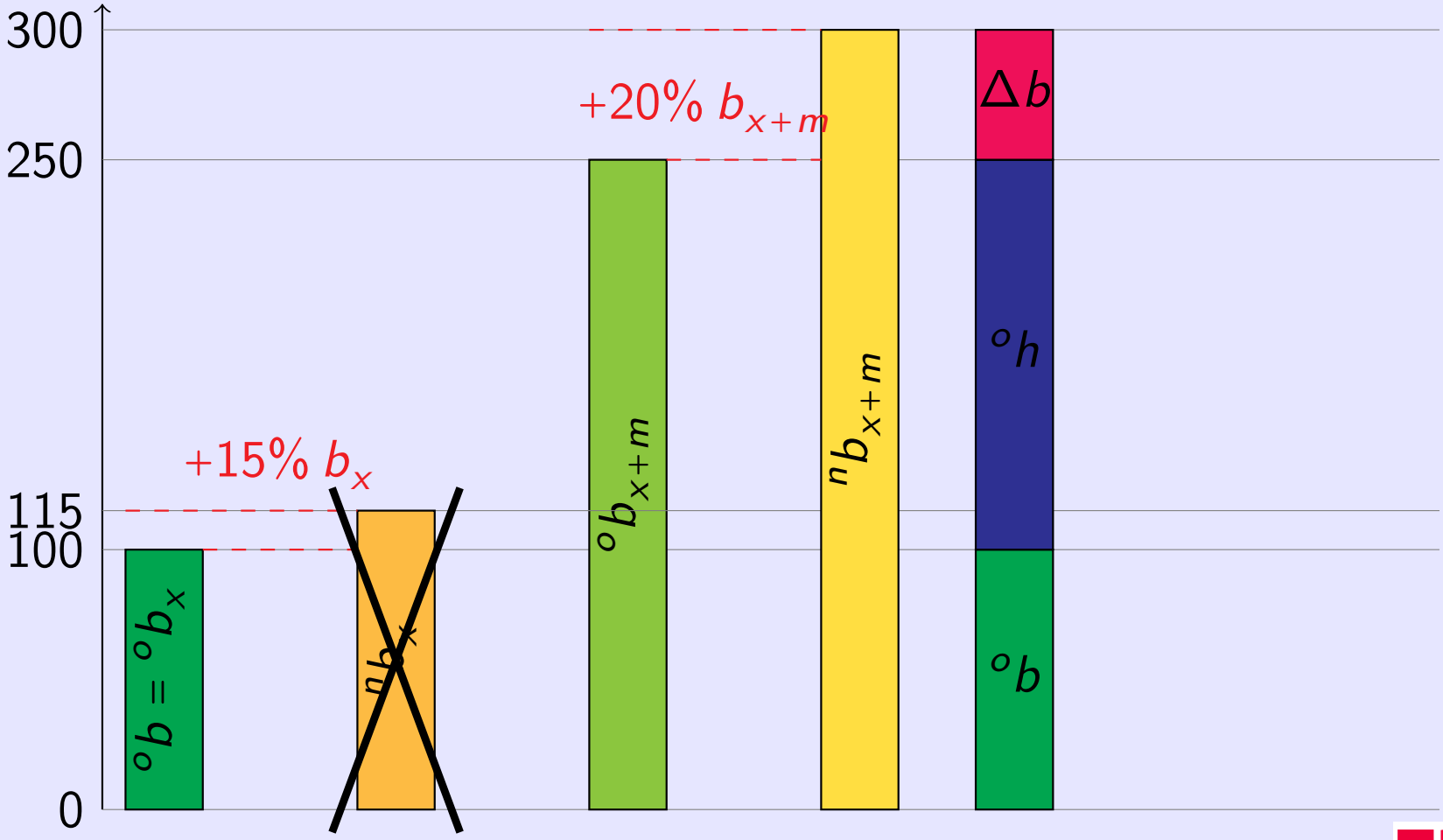


Components of individual premium increase

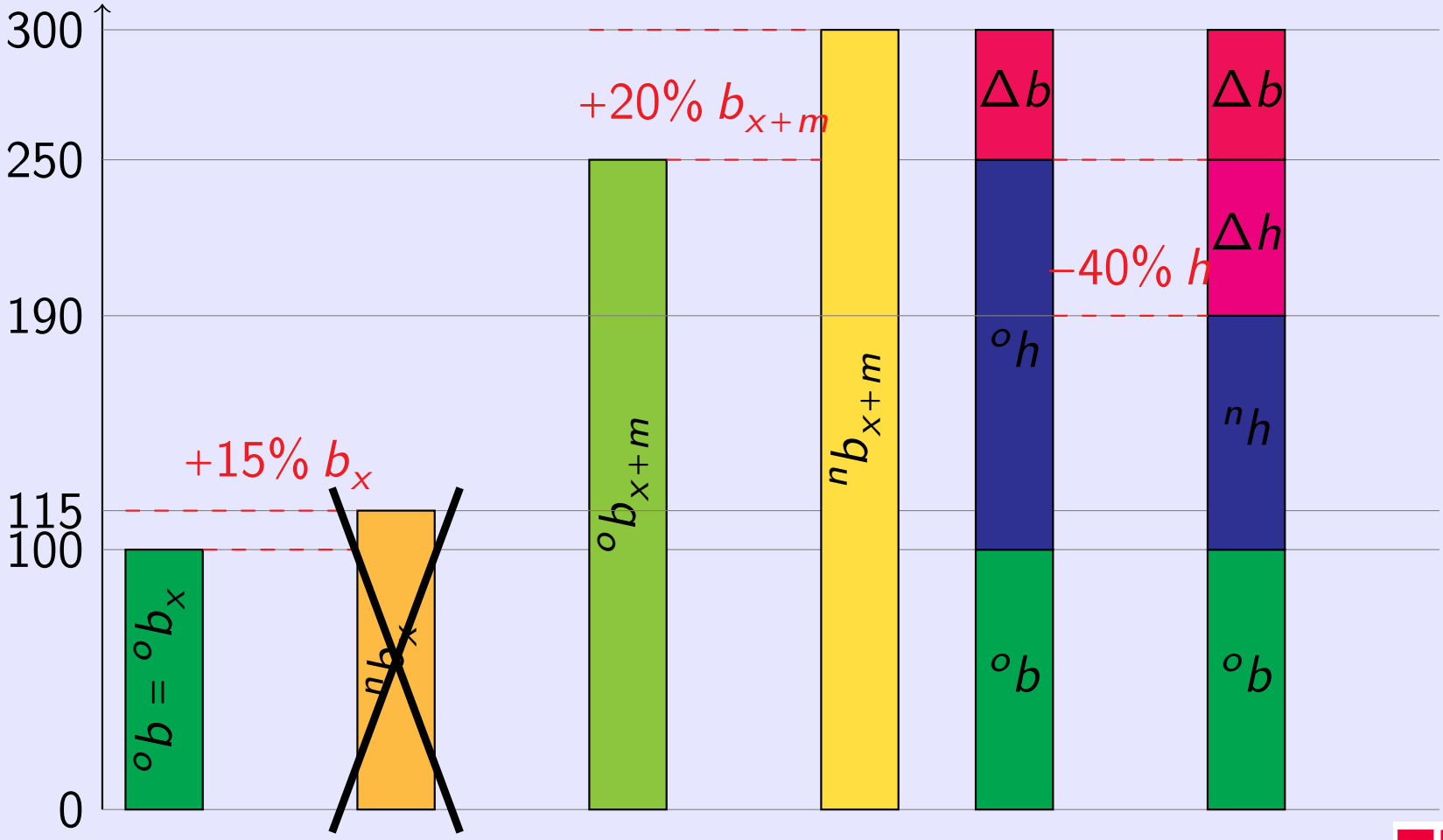


Components of individual premium increase

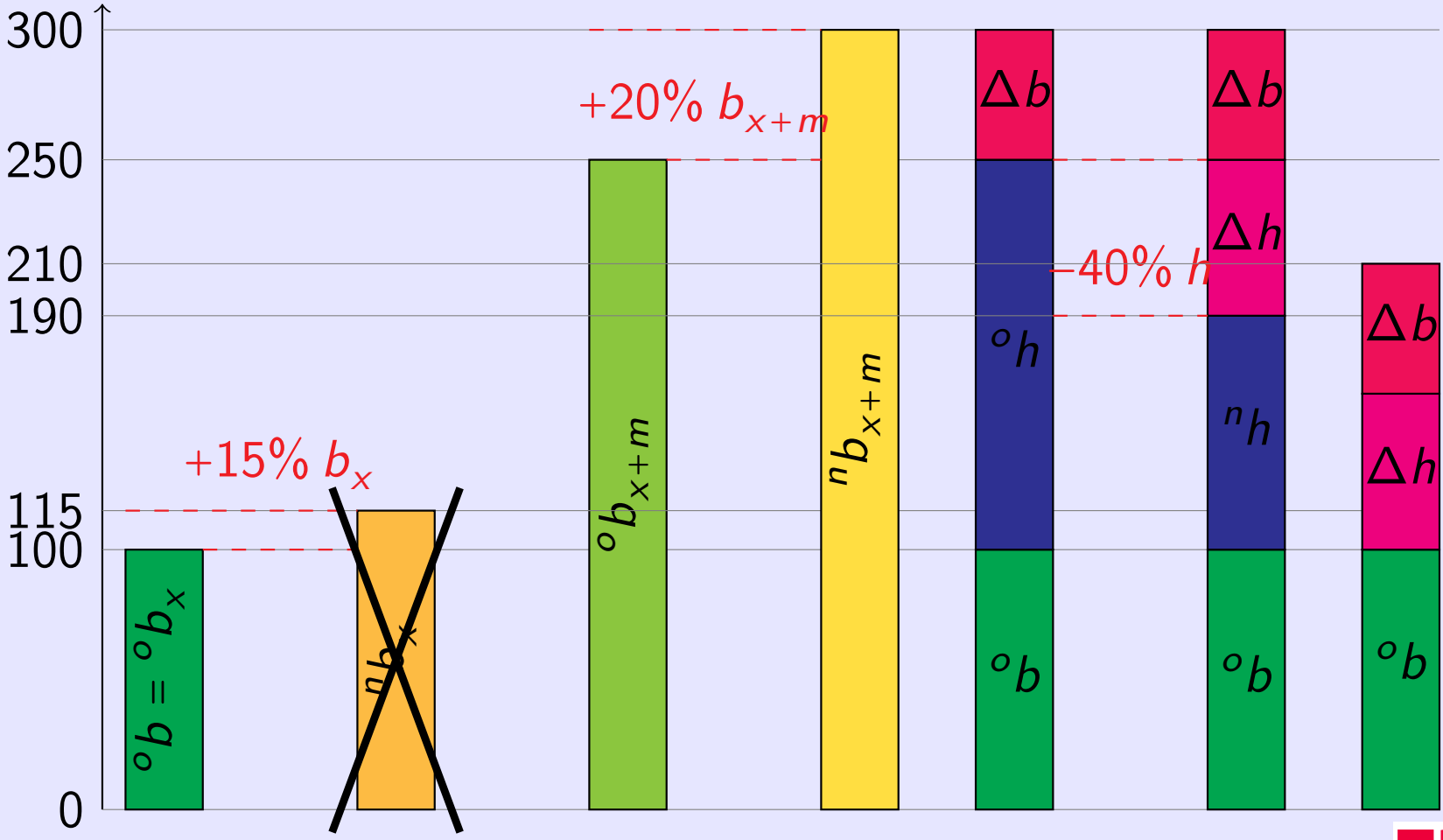
Components of individual premium increase



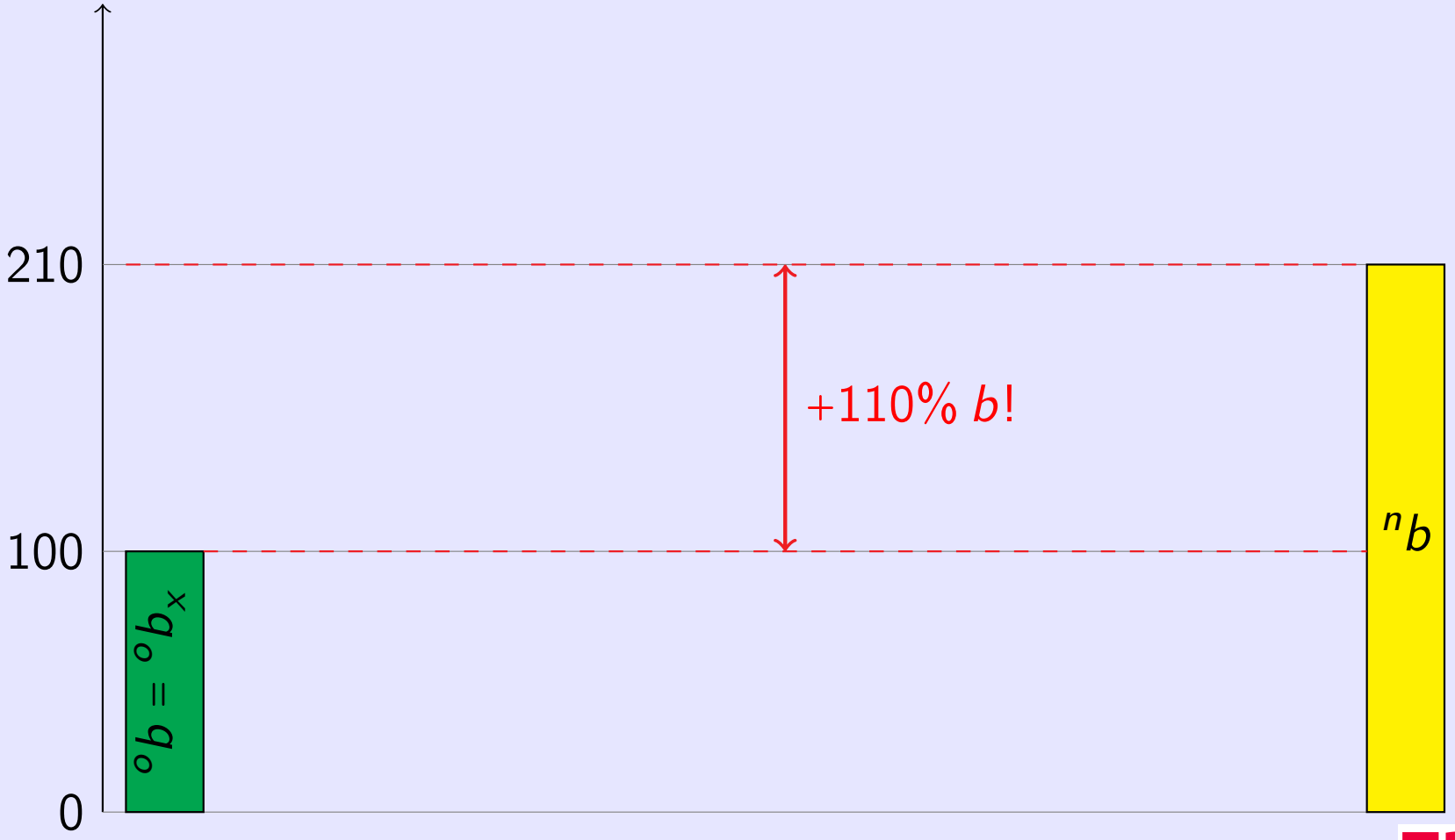
Components of individual premium increase



Components of individual premium increase



Components of individual premium increase



recalculation

Illustration of simple capping scheme

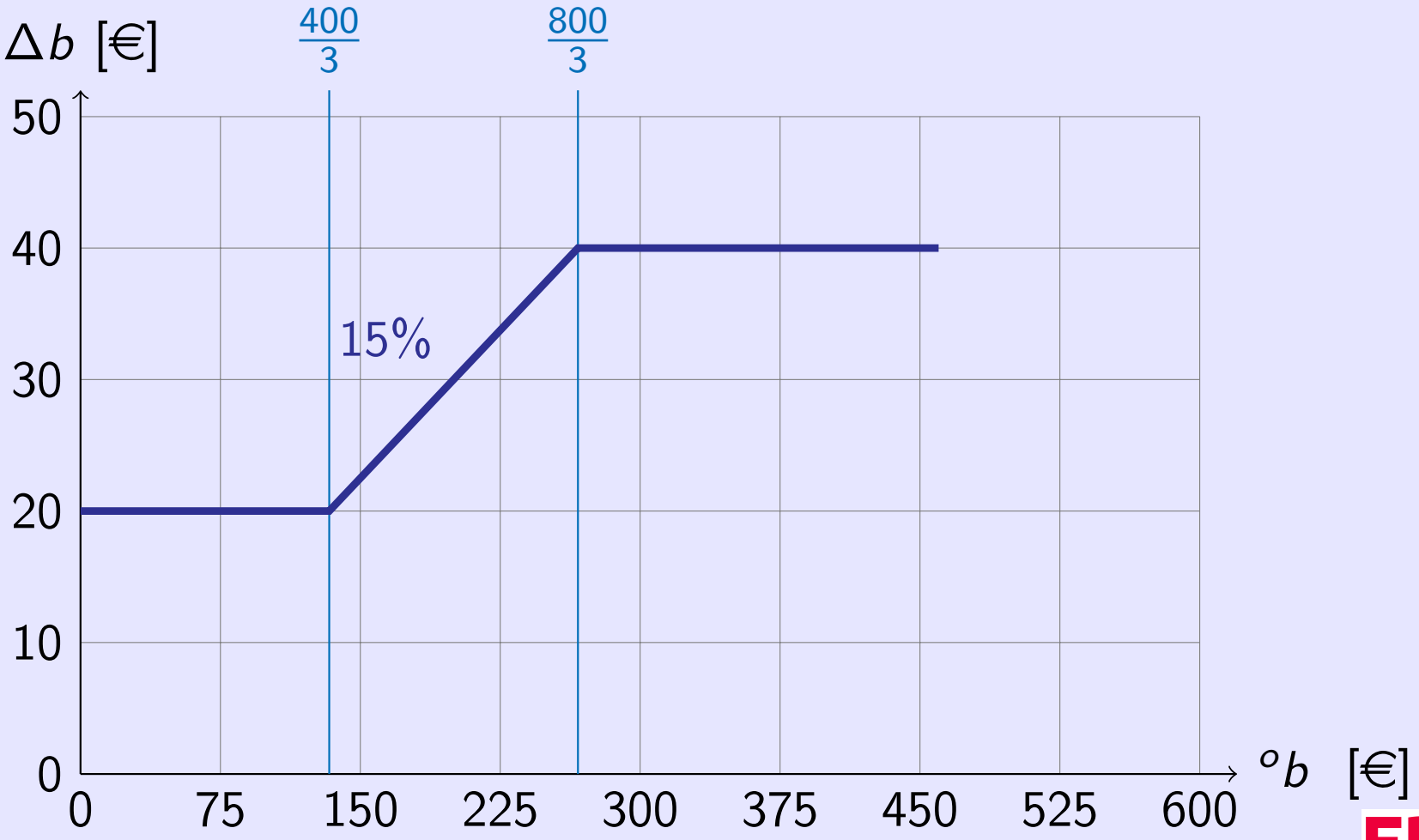


Illustration of simple capping scheme

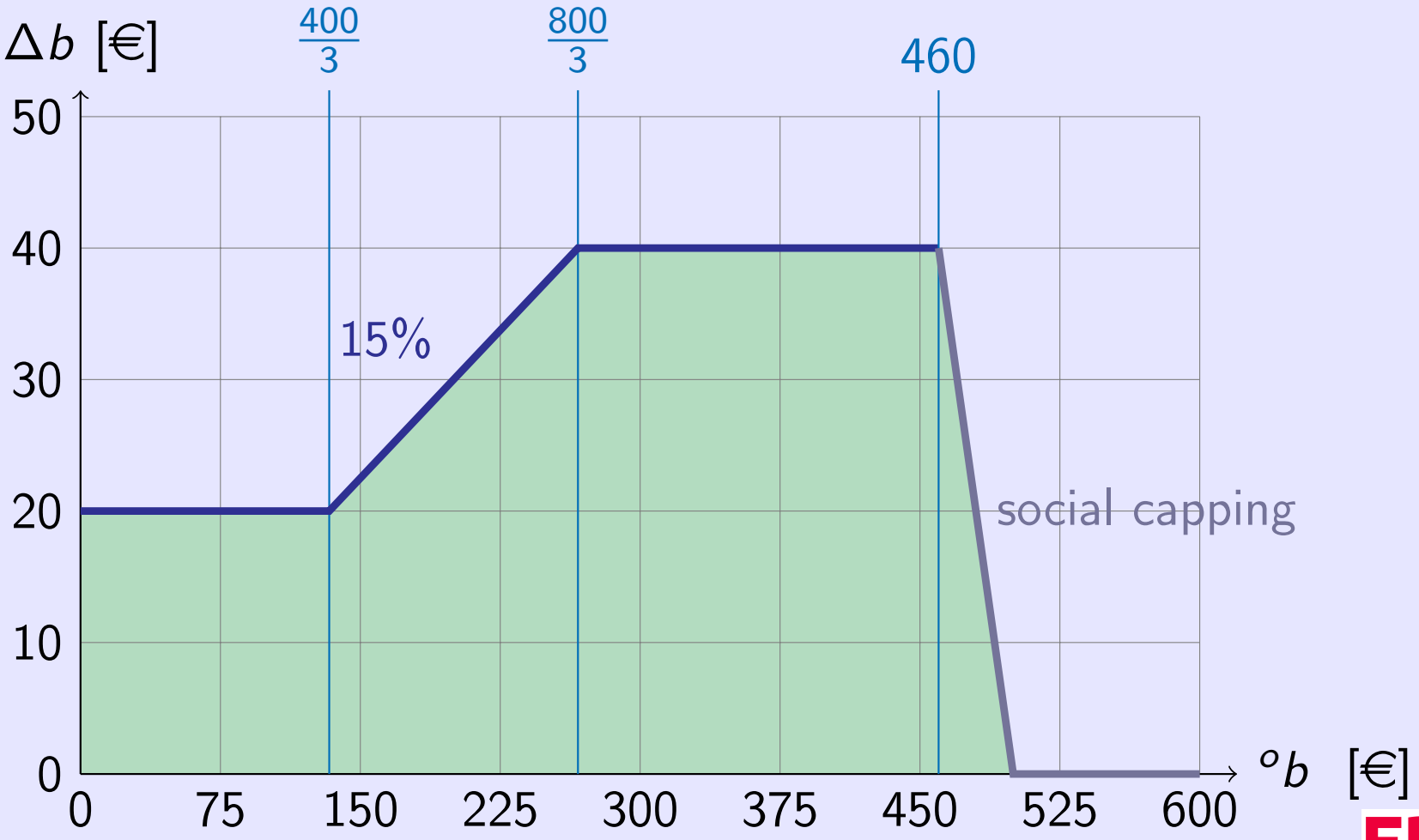


Illustration of simple capping scheme

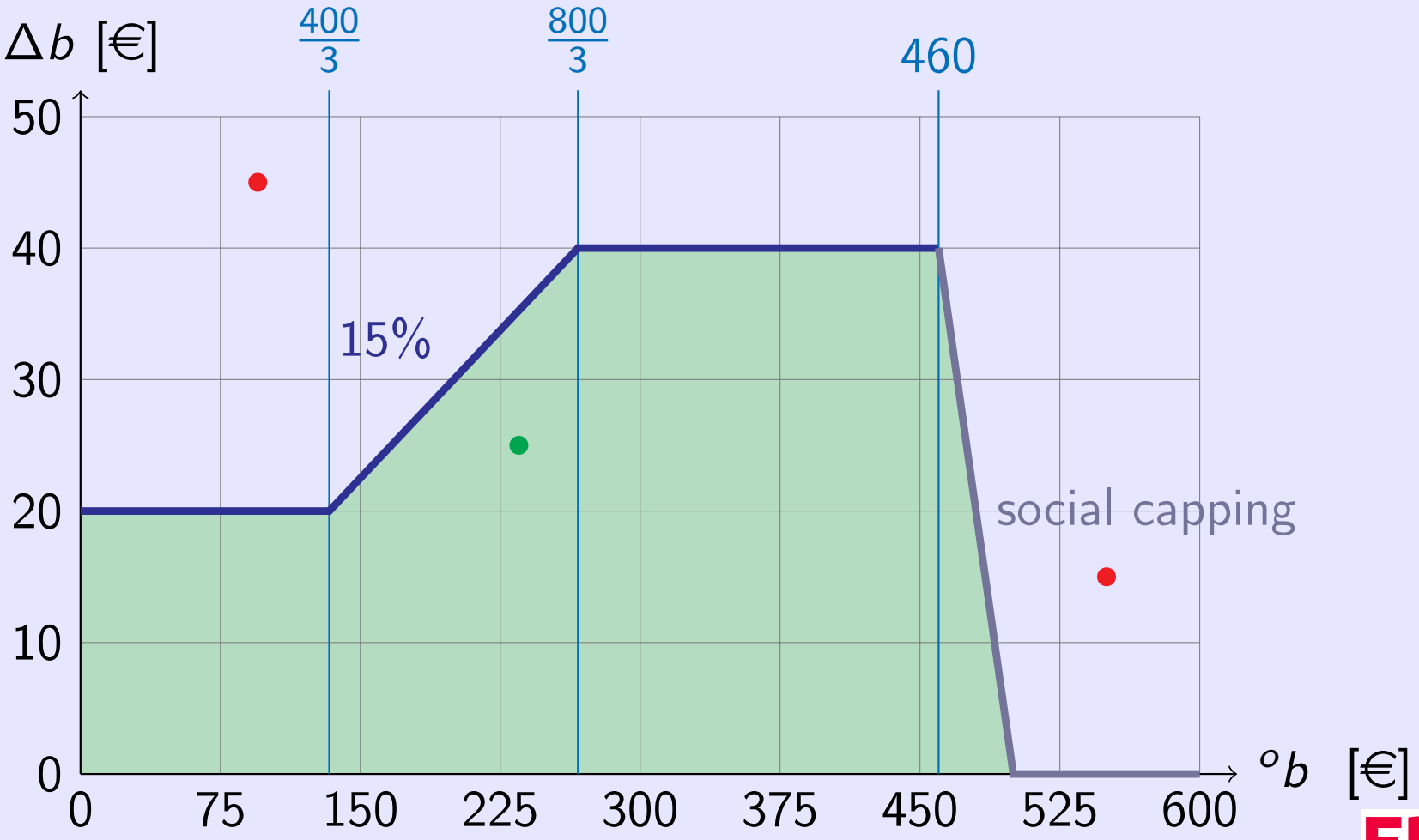
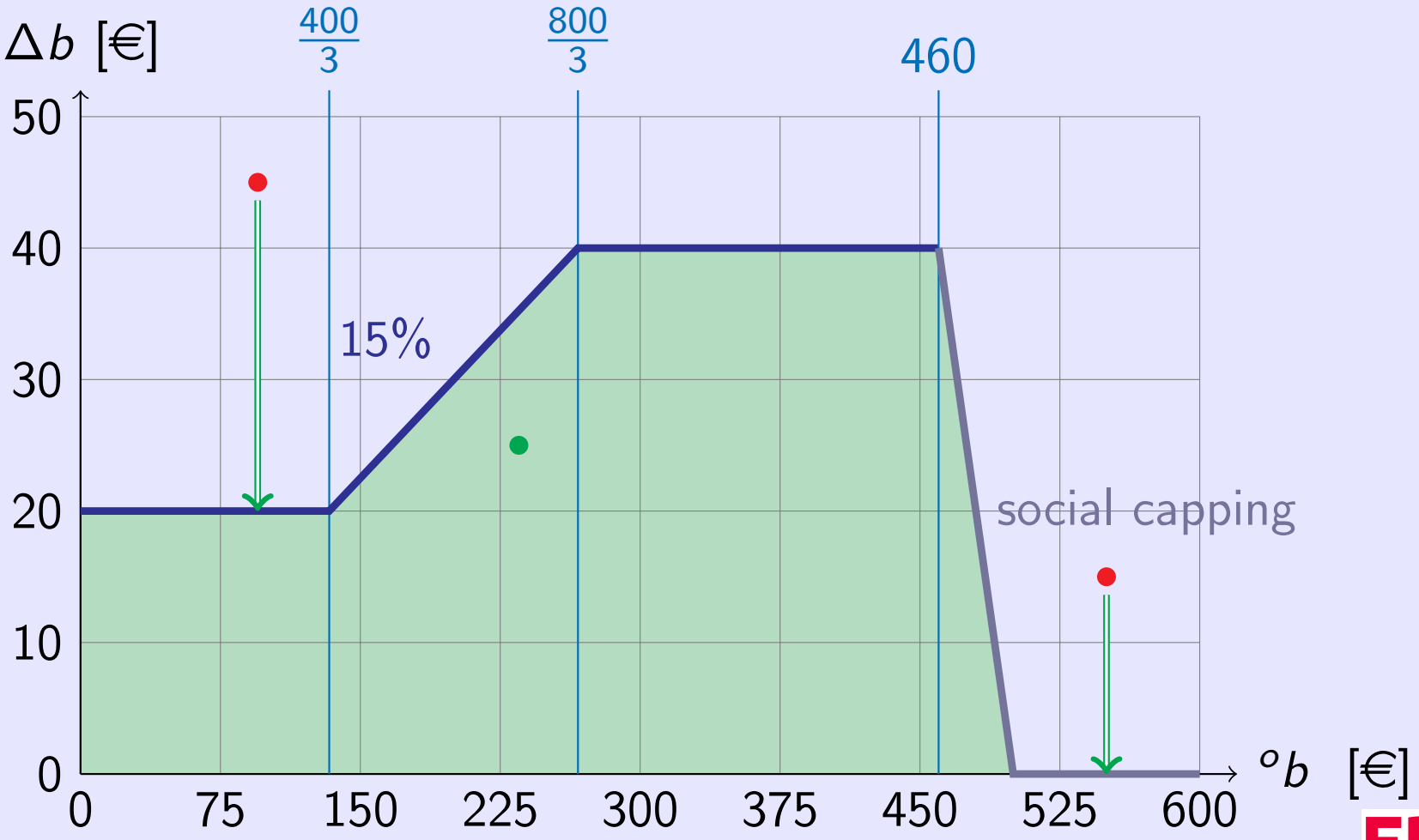


Illustration of simple capping scheme



capping idea

Surplus of DKV and its use (older years)

Using surplus for capping scheme and premium refunding by DKV as shown in the balance sheet (in millions of euros):

year	capping scheme	premium refunding	added surplus
2005	217	95	506
2006	137	100	515
2007	188	104	432
2008	314	112	52
2009	229	114	302

capping costs

Surplus of DKV and its use

Using surplus for capping scheme and premium refunding by DKV as shown in the balance sheet (in millions of euros):

year	capping scheme	premium refunding	added surplus
2009	229	114	302
2010	295	174	546
2011	309	150	541
2012	217	160	735
2013	645	157	561
2014	331	167	836

The year 2009 is not directly comparable to the rest as it does not reflect the merge with VICTORIA Kranken per 01.01.2010.

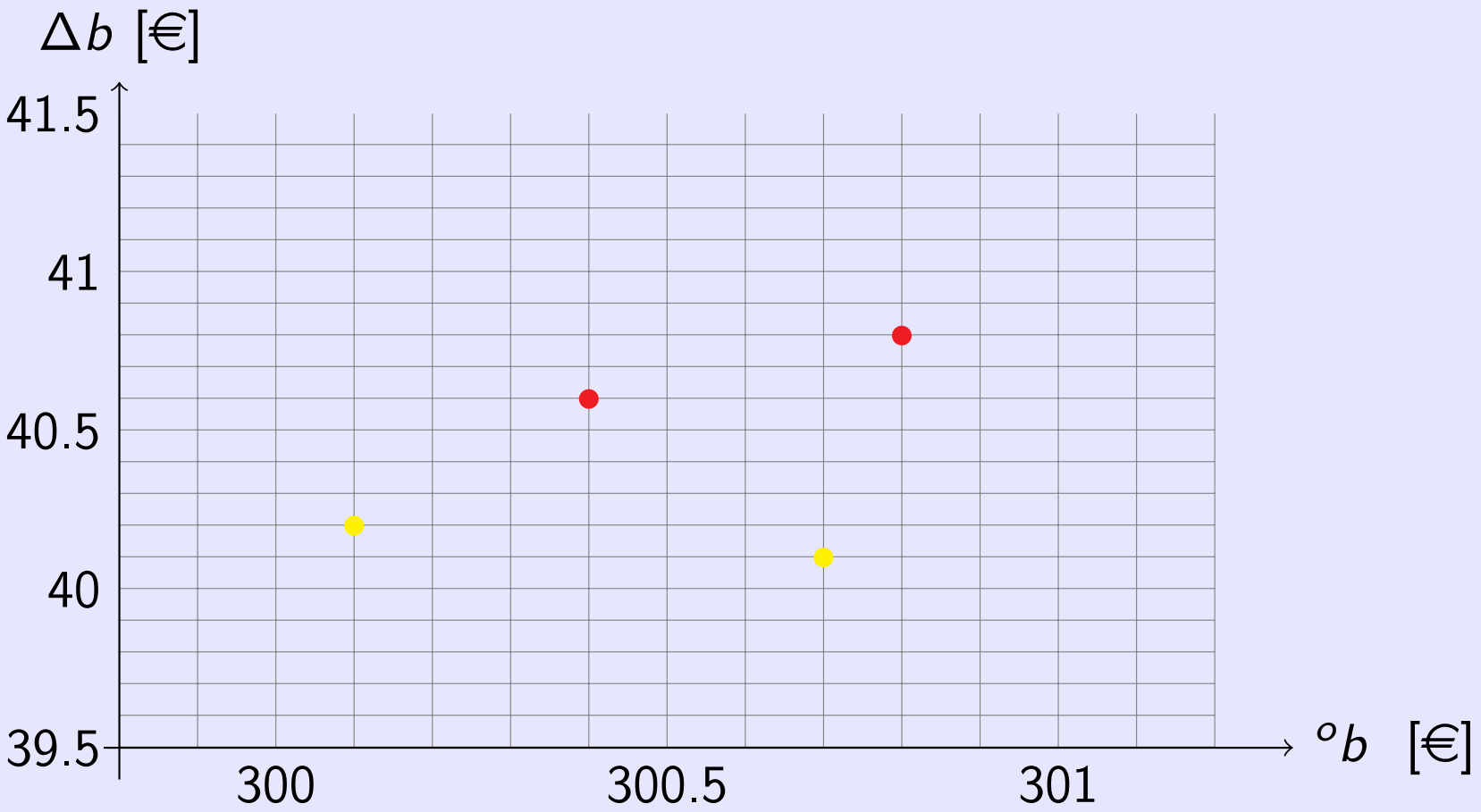
◂ capping costs

List of results snapshot

Name	Größe	Änderungsdatum	Typ
ERGO-Beitragspercentile nach Auswertungsgruppe (Modell 77 (650,LIM)) CORE+KALK_201...	497 KB	15.01.2013 09:15	Mic
ERGO-Beitragspercentile nach Position (Modell 77 (650,LIM)) CORE+KALK_2013-01-14.xls	52 KB	15.01.2013 09:14	Mic
ERGO-Beitragspercentile nach Tarif (Modell 77 (650,LIM)) CORE+KALK_2013-01-14.xls	3.022 KB	15.01.2013 09:15	Mic
ERGO-Beitragspercentile nach Versicherungsart (Modell 77 (650,LIM)) CORE+KALK_2013-...	212 KB	15.01.2013 09:15	Mic
ERGO-Beitragspercentile nach Versicherungsnummer (Modell 77 (650,LIM)) CORE+KALK_...	21 KB	15.01.2013 09:14	Mic
ERGO-Bewertung nach Auswertungsgruppe (Modell 77 (650,LIM)) CORE+KALK_2013-01-14...	1.130 KB	15.01.2013 08:58	Mic
ERGO-Bewertung nach Modellpunkt (Modell 77 (650,LIM)) CORE+KALK_2013-01-14.xls	164 KB	15.01.2013 08:58	Mic
ERGO-Bewertung nach Tarif (Modell 77 (650,LIM)) CORE+KALK_2013-01-14.xls	7.526 KB	15.01.2013 09:05	Mic
ERGO-Bewertung nach Versicherungsart (Modell 77 (650,LIM)) CORE+KALK_2013-01-14.xls	334 KB	15.01.2013 08:57	Mic
ERGO-Bewertungs-Übersicht (Modell 77 (650,LIM)) CORE+KALK_2013-01-14.xls	514 KB	15.01.2013 08:57	Mic
ERGO-Durchschnittlicher Mehrbeitrag der Auswertungsgruppen (Modell 77 (650,LIM)) CORE...	348 KB	15.01.2013 09:14	Mic
ERGO-Durchschnittlicher Mehrbeitrag der Modellpunkte (Modell 77 (650,LIM)) CORE+KALK...	85 KB	15.01.2013 09:14	Mic
ERGO-Durchschnittlicher Mehrbeitrag der Tarife (Modell 77 (650,LIM)) CORE+KALK_2013-0...	1.934 KB	15.01.2013 09:14	Mic
ERGO-Durchschnittlicher Mehrbeitrag der Versicherungsarten (Modell 77 (650,LIM)) CORE+...	147 KB	15.01.2013 09:14	Mic
ERGO-Limitierungsergebnis (Modell 77 (650,LIM)) CORE+KALK_2013-01-14.sf	1.296.494 KB	15.01.2013 08:55	AP
ERGO-Statistiken und Hinweise (Modell 77 (650,LIM)) CORE+KALK_2013-01-14.sf	134.817 KB	17.01.2013 08:22	AP
ERGO-Statistiken und Hinweise (Modell 77 (650,LIM)) CORE+KALK_2013-01-14.xls	3.352 KB	15.01.2013 09:15	Mic
ERGO-Verteilung nach Auswertungsgruppe (Modell 77 (650,LIM)) CORE+KALK_2013-01-14....	837 KB	15.01.2013 09:07	Mic
ERGO-Verteilung nach Modellpunkt (Modell 77 (650,LIM)) CORE+KALK_2013-01-14.xls	117 KB	15.01.2013 09:07	Mic
ERGO-Verteilung nach Tarif (Modell 77 (650,LIM)) CORE+KALK_2013-01-14.xls	5.257 KB	15.01.2013 09:14	Mic
ERGO-Verteilung nach Versicherungsart (Modell 77 (650,LIM)) CORE+KALK_2013-01-14.xls	227 KB	15.01.2013 09:06	Mic

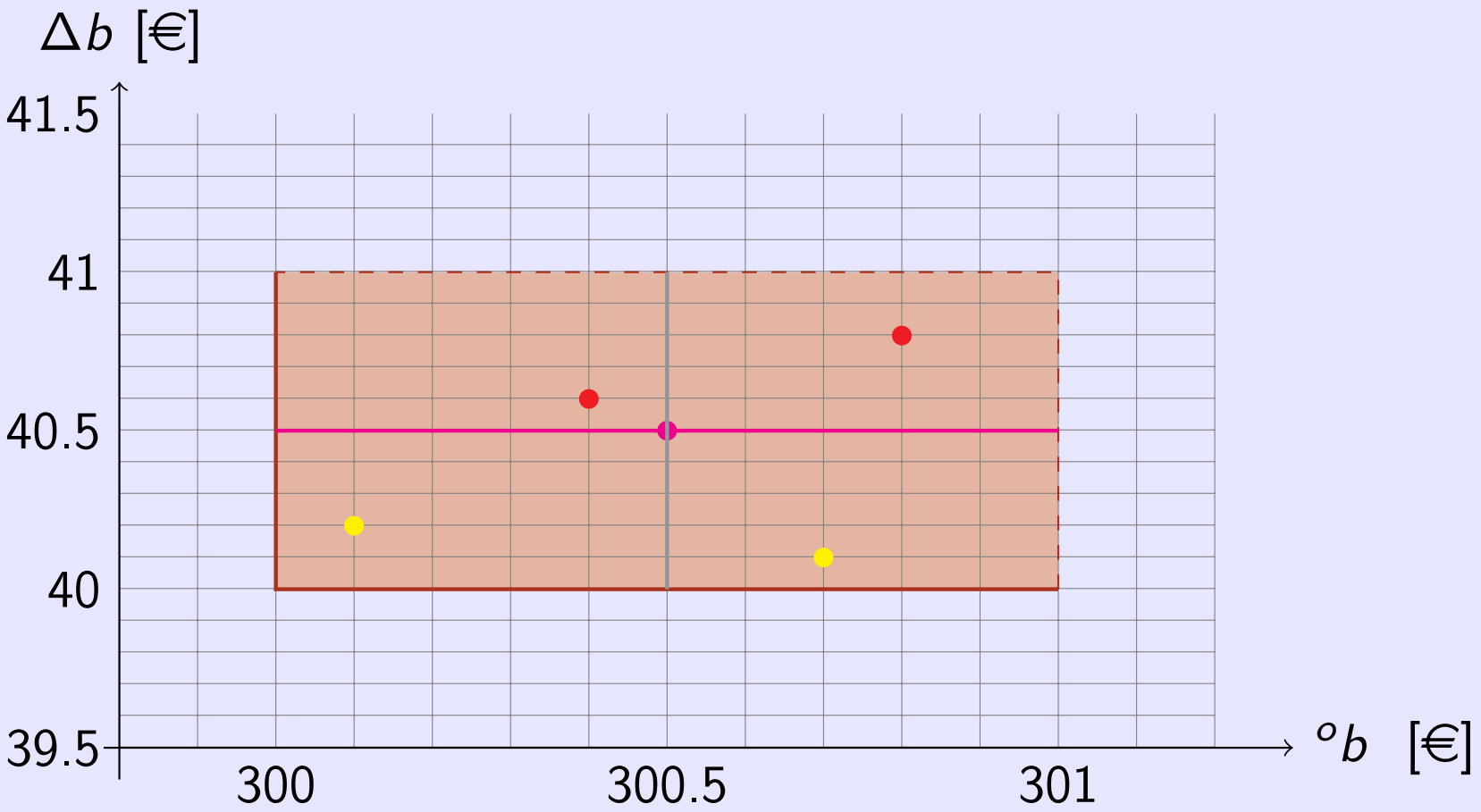
reports

Illustration of capping agglomeration and associated error



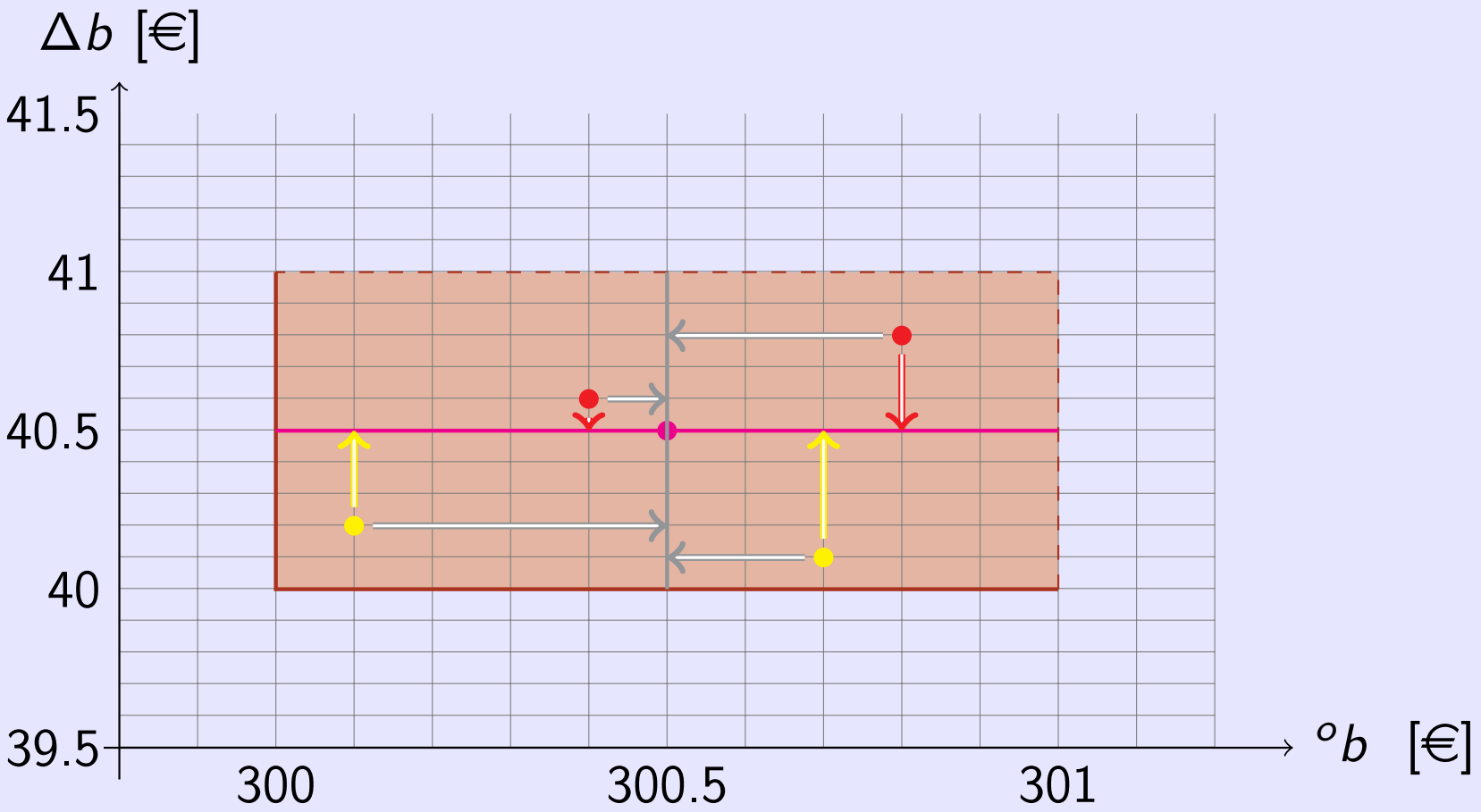
The agglomeration error with respect to absolute limits is demonstrated.

Illustration of capping agglomeration and associated error



The agglomeration error with respect to absolute limits is demonstrated.

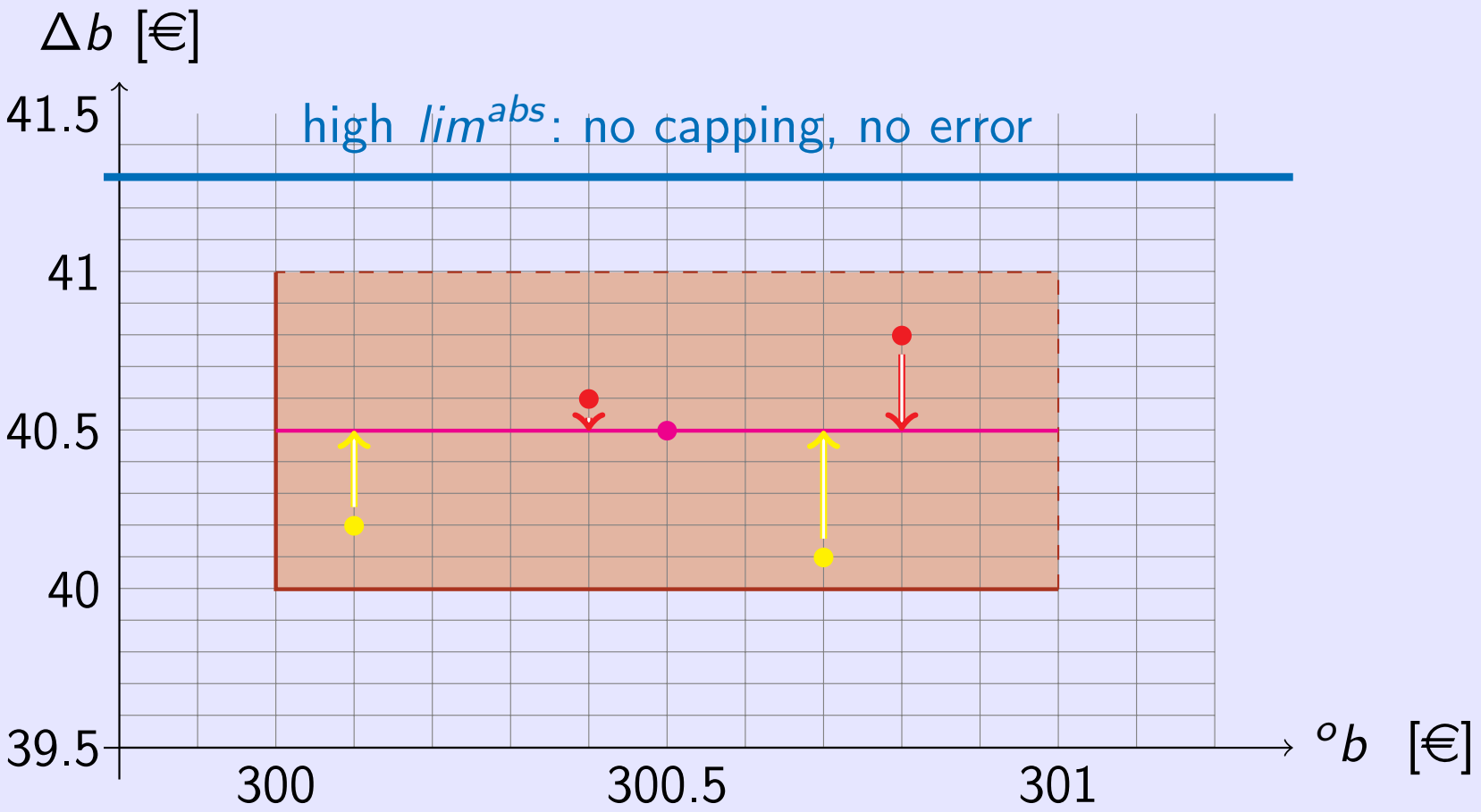
Illustration of capping agglomeration and associated error



The agglomeration error with respect to absolute limits is demonstrated.

◂ agglomeration

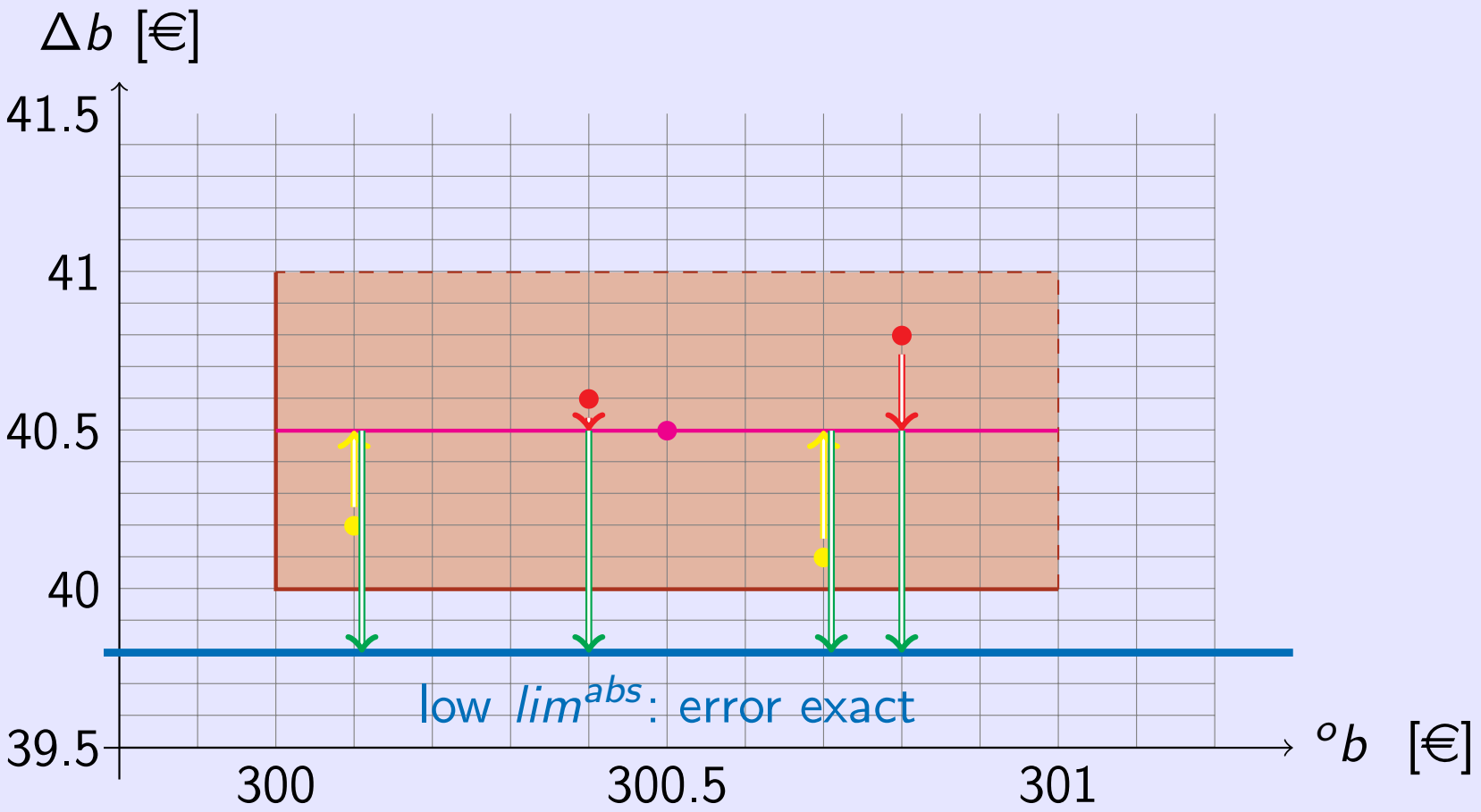
Illustration of capping agglomeration and associated error



The agglomeration error with respect to absolute limits is demonstrated.

◂ agglomeration

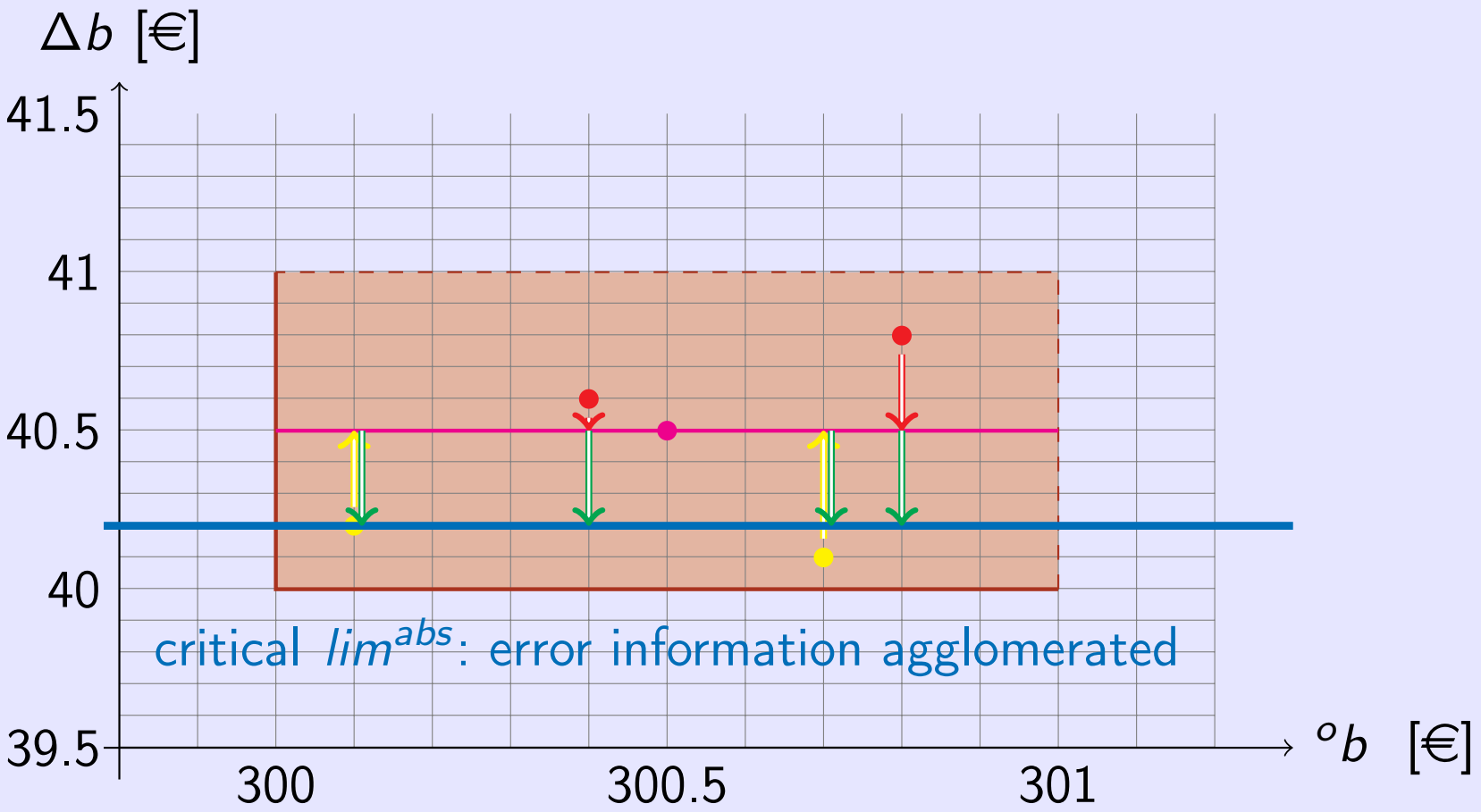
Illustration of capping agglomeration and associated error



The agglomeration error with respect to absolute limits is demonstrated.

◂ agglomeration

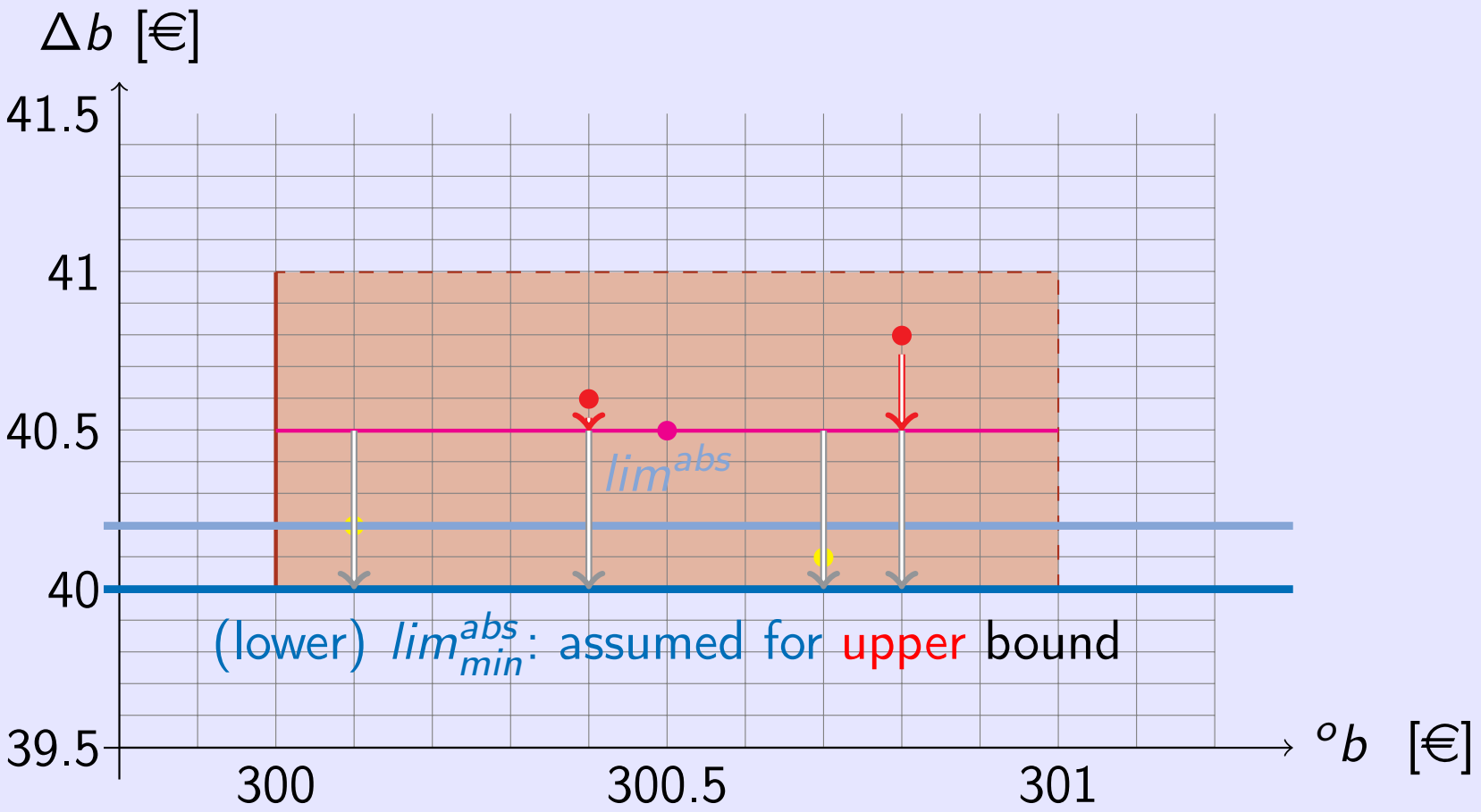
Illustration of capping agglomeration and associated error



The agglomeration error with respect to absolute limits is demonstrated.

◂ agglomeration

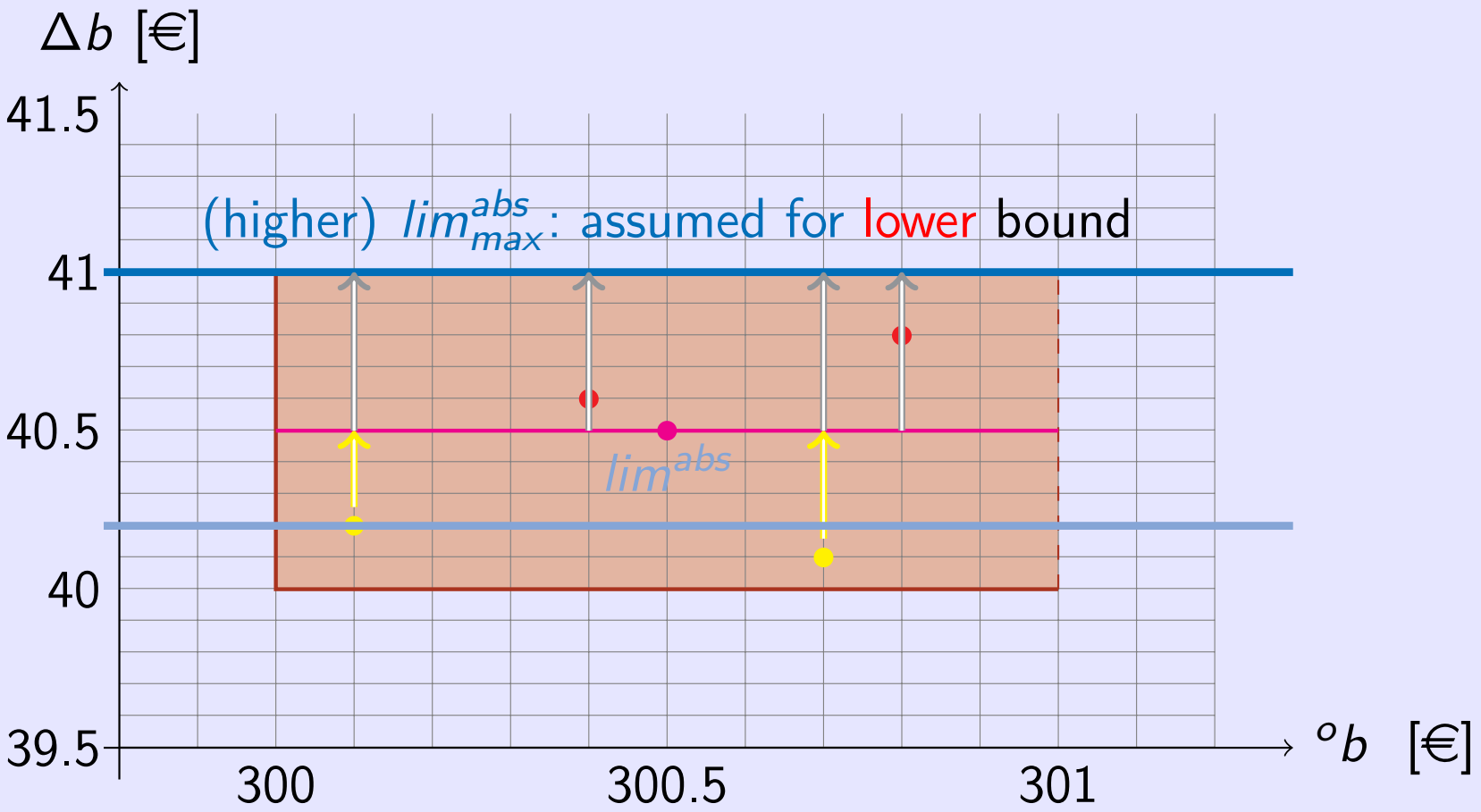
Illustration of capping agglomeration and associated error



The agglomeration error with respect to absolute limits is demonstrated.

◂ agglomeration

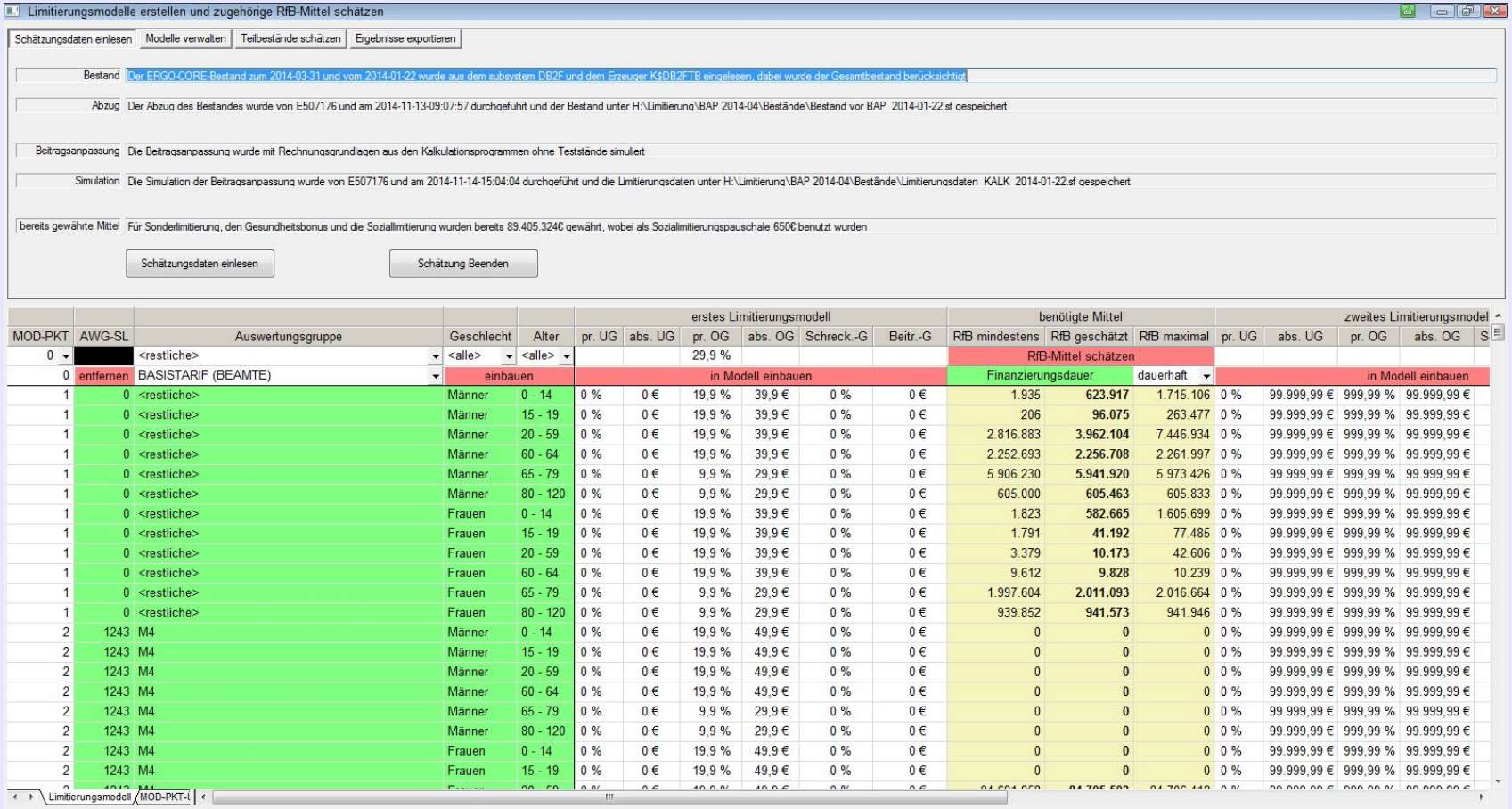
Illustration of capping agglomeration and associated error



The agglomeration error with respect to absolute limits is demonstrated.

◂ agglomeration

Cost estimation GUI snapshot



MOD-PKT	AWG-SL	Auswertungsgruppe	Geschlecht	Alter	pr. UG	abs. UG	pr. OG	abs. OG	Schreck.-G	Beitr.-G	RfB mindestens	RfB geschätzt	RfB maximal	pr. UG	abs. UG	pr. OG	abs. OG
0		<restliche>	<alle>	<alle>			29,9 %				RfB-Mittel schätzen						
0	entfernen	BASISTARIF (BEAMTE)	einbauen		in Modell einbauen						Finanzierungsdauer		dauerhaft	in Modell einbauen			
1	0	<restliche>	Männer	0 - 14	0 %	0 €	19,9 %	39,9 €	0 %	0 €	1.935	**623.917**	1.715.106	0 %	99.999,99 €	999,99 %	99.999,99 €
1	0	<restliche>	Männer	15 - 19	0 %	0 €	19,9 %	39,9 €	0 %	0 €	206	**96.075**	263.477	0 %	99.999,99 €	999,99 %	99.999,99 €
1	0	<restliche>	Männer	20 - 59	0 %	0 €	19,9 %	39,9 €	0 %	0 €	2.816.883	**3.962.104**	7.446.934	0 %	99.999,99 €	999,99 %	99.999,99 €
1	0	<restliche>	Männer	60 - 64	0 %	0 €	19,9 %	39,9 €	0 %	0 €	2.252.693	**2.256.708**	2.261.997	0 %	99.999,99 €	999,99 %	99.999,99 €
1	0	<restliche>	Männer	65 - 79	0 %	0 €	9,9 %	29,9 €	0 %	0 €	5.906.230	**5.941.920**	5.973.426	0 %	99.999,99 €	999,99 %	99.999,99 €
1	0	<restliche>	Männer	80 - 120	0 %	0 €	9,9 %	29,9 €	0 %	0 €	605.000	**605.463**	605.833	0 %	99.999,99 €	999,99 %	99.999,99 €
1	0	<restliche>	Frauen	0 - 14	0 %	0 €	19,9 %	39,9 €	0 %	0 €	1.823	**582.665**	1.605.699	0 %	99.999,99 €	999,99 %	99.999,99 €
1	0	<restliche>	Frauen	15 - 19	0 %	0 €	19,9 %	39,9 €	0 %	0 €	1.791	**41.192**	77.485	0 %	99.999,99 €	999,99 %	99.999,99 €
1	0	<restliche>	Frauen	20 - 59	0 %	0 €	19,9 %	39,9 €	0 %	0 €	3.379	**10.173**	42.606	0 %	99.999,99 €	999,99 %	99.999,99 €
1	0	<restliche>	Frauen	60 - 64	0 %	0 €	19,9 %	39,9 €	0 %	0 €	9.612	**9.828**	10.239	0 %	99.999,99 €	999,99 %	99.999,99 €
1	0	<restliche>	Frauen	65 - 79	0 %	0 €	9,9 %	29,9 €	0 %	0 €	1.997.604	**2.011.093**	2.016.664	0 %	99.999,99 €	999,99 %	99.999,99 €
1	0	<restliche>	Frauen	80 - 120	0 %	0 €	9,9 %	29,9 €	0 %	0 €	939.852	**941.573**	941.946	0 %	99.999,99 €	999,99 %	99.999,99 €
2	1243	M4	Männer	0 - 14	0 %	0 €	19,9 %	49,9 €	0 %	0 €	0	**0**	0	0 %	99.999,99 €	999,99 %	99.999,99 €
2	1243	M4	Männer	15 - 19	0 %	0 €	19,9 %	49,9 €	0 %	0 €	0	**0**	0	0 %	99.999,99 €	999,99 %	99.999,99 €
2	1243	M4	Männer	20 - 59	0 %	0 €	19,9 %	49,9 €	0 %	0 €	0	**0**	0	0 %	99.999,99 €	999,99 %	99.999,99 €
2	1243	M4	Männer	60 - 64	0 %	0 €	19,9 %	49,9 €	0 %	0 €	0	**0**	0	0 %	99.999,99 €	999,99 %	99.999,99 €
2	1243	M4	Männer	65 - 79	0 %	0 €	9,9 %	29,9 €	0 %	0 €	0	**0**	0	0 %	99.999,99 €	999,99 %	99.999,99 €
2	1243	M4	Männer	80 - 120	0 %	0 €	9,9 %	29,9 €	0 %	0 €	0	**0**	0	0 %	99.999,99 €	999,99 %	99.999,99 €
2	1243	M4	Frauen	0 - 14	0 %	0 €	19,9 %	49,9 €	0 %	0 €	0	**0**	0	0 %	99.999,99 €	999,99 %	99.999,99 €
2	1243	M4	Frauen	15 - 19	0 %	0 €	19,9 %	49,9 €	0 %	0 €	0	**0**	0	0 %	99.999,99 €	999,99 %	99.999,99 €

◂ estimator