

4º Workshop Duxus de Risco

Notas de Risco.



MMIRRB

IRRBB uma revisão Conceitual

Fábio Henrique Costa Corrêa



$$\text{NII Sensitivity} = \frac{\Delta \text{NII for 1\% adverse change in interest rates}}{\text{Base case NII}}$$

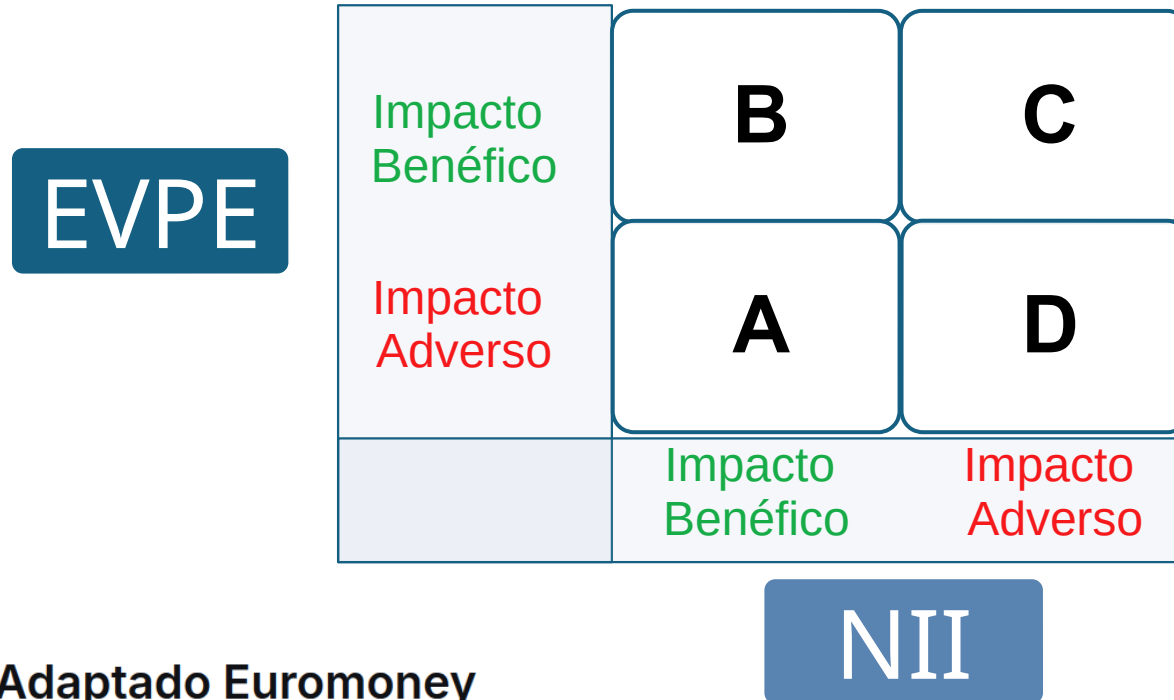
$$\text{NII Sensitivity} = \frac{\Delta \text{NII for 1\% adverse change in interest rates}}{\text{Total Assets}}$$

Adaptado Euromoney

$$\Delta EVPE = \frac{\Delta EVPE \text{ for } 1\% \text{ adverse change in interest rates}}{\text{Base case EVPE}}$$

$$\Delta EVPE = \frac{\Delta EVPE \text{ for } 1\% \text{ adverse change in interest rates}}{\text{Total Assets}}$$

Adaptado Euromoney



Adaptado Euromoney

NII**EVPE**

	DU 1-126	DU 126-252	DU 252-756	DU 756-1764	EQUITY	TOTAL
Assets	100			100		200
Liabilities		100	80		20	200
GAP	100	(100)	(80)	100	(20)	0
GAP Acum.	100	0	(80)	20	0	

Adaptado Euromoney

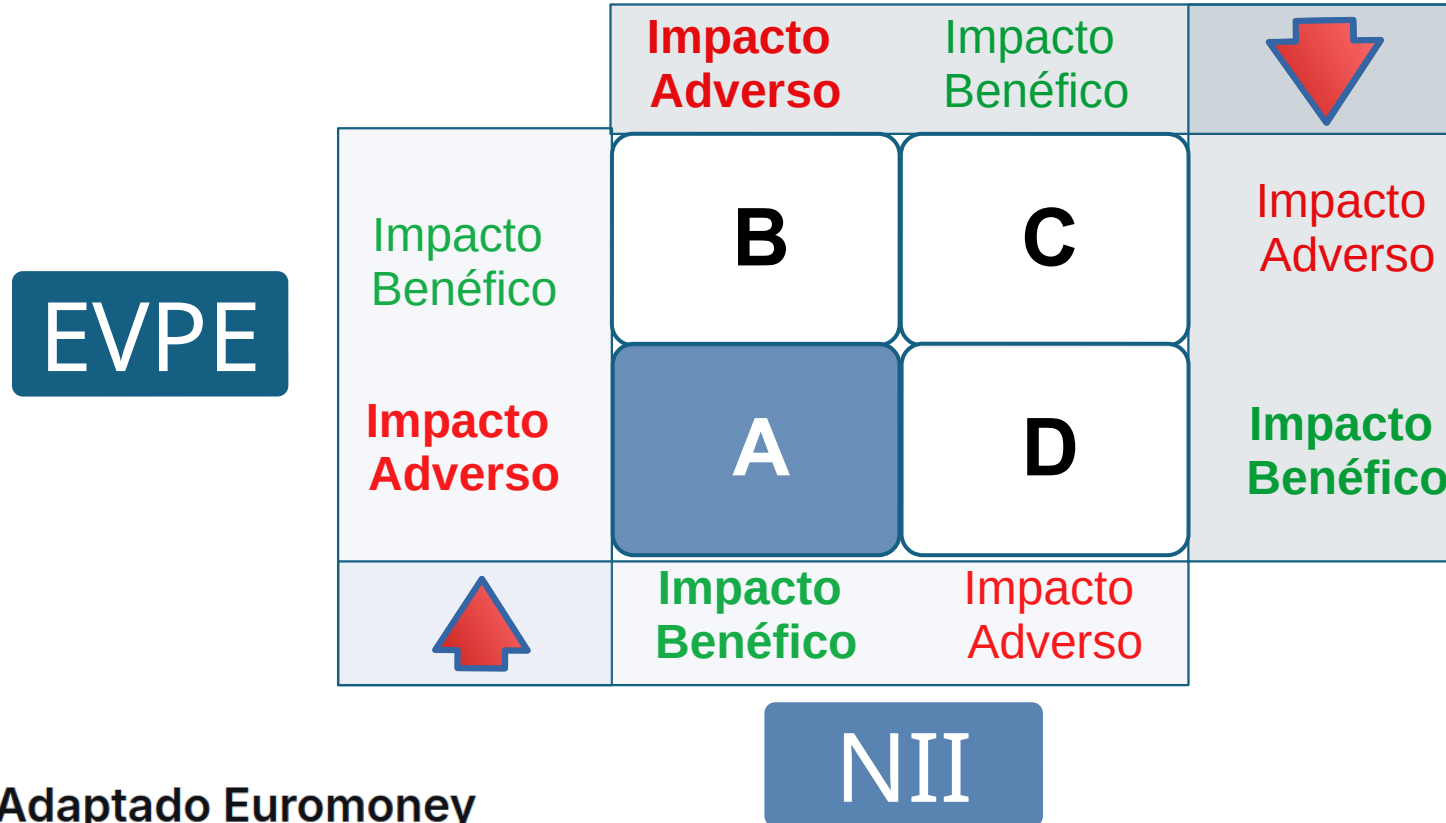
NII

EVPE

	DU 1-126	DU 126-252	DU 252-756	DU 756- 1764	EQUITY	TOTAL
Assets	100			100		200
Liabilities		100	80		20	200
GAP	100	(100)	(80)	100	(20)	0
GAP Acum.	100	0	(80)	20	0	

Adaptado Euromoney





Adaptado Euromoney



Impacto
Adverso

Impacto
Benéfico



- (1) Gap risk arises from the term structure of banking book instruments, and describes the risk arising from the timing of instrument rate changes. Since rate resets on different instruments occur at different tenors, the risk to the bank arises when the rate of interest paid on liabilities increases before the rate of interest received on assets, or reduces on assets before liabilities. Unless hedged in terms of tenor and amount, the bank may be exposed to a period of reduced or negative interest margins, or may experience changes in the relative economic values of assets and liabilities. The extent of gap risk depends also on whether changes to the term structure of interest rates occur consistently across the yield curve (parallel risk) or differentially by period (non-parallel risk).²



Benéfico

Adverso

NII

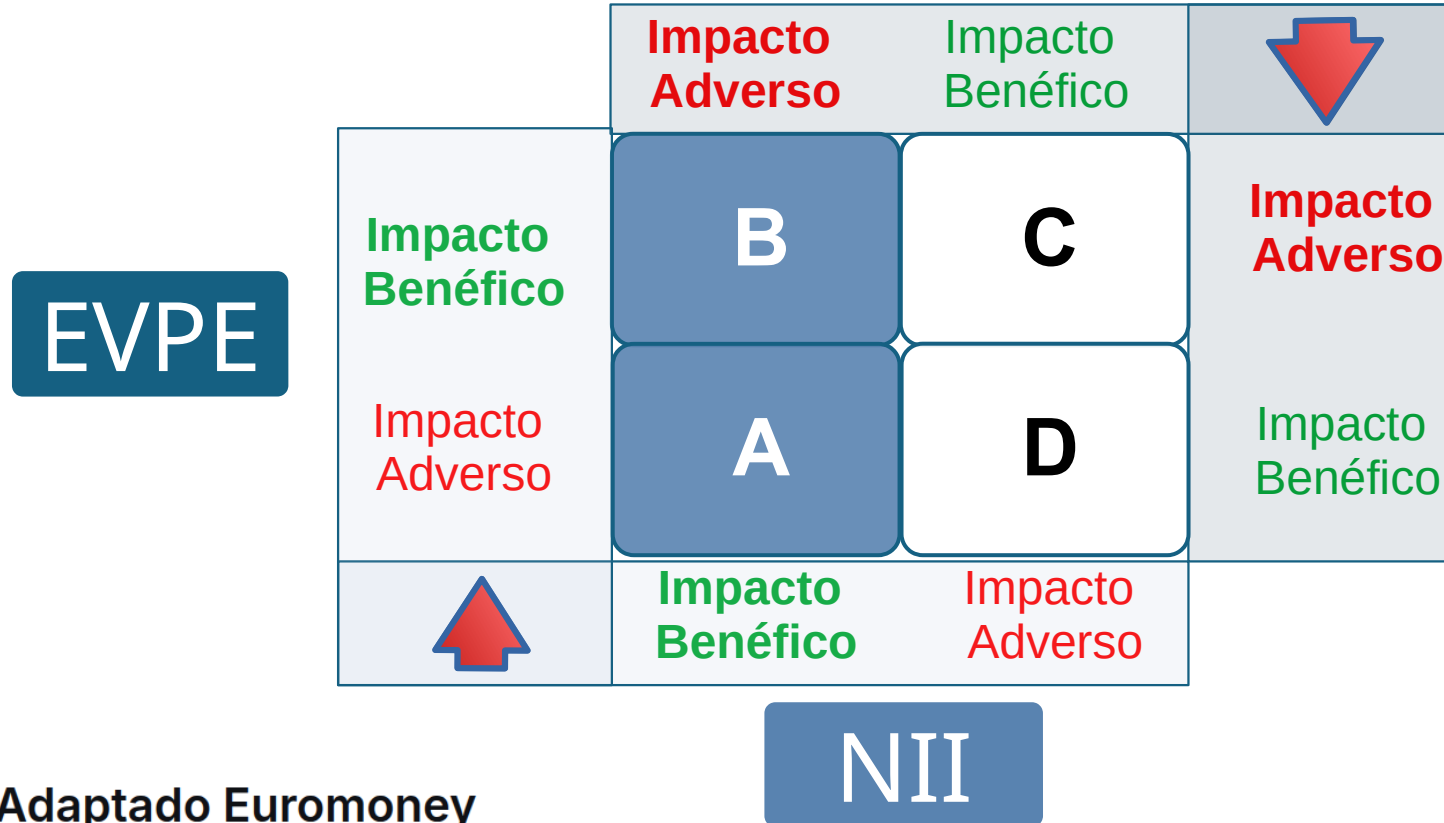
Adaptado Euromoney

NII**EVPE**

	DU 1-126	DU 126-252	DU 252-756	DU 756-1764	EQUITY	TOTAL
Assets	100		100			200
Liabilities		100		80	20	200
GAP	100	(100)	100	(80)	(20)	0
GAP acum.	100	0	100	20	0	

Adaptado Euromoney





Adaptado Euromoney

NII**EVPE**

	DU 1-126	DU 126-252	DU 252-756	DU 756-1764	EQUITY	TOTAL
Assets		100	100			200
Liabilities	100			80	20	200
GAP	(100)	100	100	(80)	(20)	0
GAP acum.	(100)	0	100	20	0	

Adaptado Euromoney

		TAXA		EVPE		
	NII		Adverso	Benéfico		
Assets	100					200
Liabilities		EVPE	Benéfico	Adverso	20	200
GAP						0
GAP Acum.	(100)	0	100	20	0	

Adaptado Euromoney

EVPE

	Impacto Adverso	Impacto Benéfico	
Impacto Benéfico	B	C	Impacto Adverso
Impacto Adverso	A	D	Impacto Benéfico
	Impacto Benéfico	Impacto Adverso	

NII

Adaptado Euromoney

NII**EVPE**

	DU 1-126	DU 126-252	DU 252-756	DU 756-1764	EQUITY	TOTAL
Assets		100		100		200
Liabilities	100		80		20	200
GAP	(100)	100	(80)	100	(20)	0
GAP acum.	(100)	0	(80)	20	0	

Adaptado Euromoney

		TAXA		EVPE		
		NII				
			Adverso	Benéfico		
Assets	100					200
Liabilities		EVPE	Adverso	Benéfico	20	200
GAP					(20)	0
GAP acum.	(100)		0	(80)	20	0

Adaptado Euromoney

EVPE

	Impacto Adverso	Impacto Benéfico	
Impacto Benéfico	B	C	Impacto Adverso
Impacto Adverso	A	D	Impacto Benéfico
	Impacto Benéfico	Impacto Adverso	

NII

Adaptado Euromoney

Choques de NII e EVE



Adaptado Euromoney

Choques de Fatores de Risco (basis points)

Fatores de risco	 $\bar{R}_{paralelo,f}$	 $\bar{R}_{curto,f}$	 $\bar{R}_{longo,f}$
Taxas de juros prefixadas referenciadas em reais	● 400	● 500	● 300
Taxas de juros pós-fixadas referenciadas em reais	● 400	● 500	● 300
Taxas de juros de moedas estrangeiras			
Dólar canadense	● 200	● 300	● 150
Dólar dos Estados Unidos da América	● 200	● 300	● 150
Franco suíço	● 100	● 150	● 100
Euro	● 200	● 250	● 100
Libra esterlina	● 250	● 300	● 150
Iene japonês	● 100	● 100	● 100
Demais moedas	● 400	● 500	● 300

Choques de Fatores de Risco (basis points)

Fatores de risco

	 $\bar{R}_{paralelo,f}$	 $\bar{R}_{curto,f}$	 $\bar{R}_{longo,f}$
Taxas de juros prefixadas referenciadas em reais	● 400	● 500	● 300
Taxas de juros pós-fixadas referenciadas em reais	● 400	● 500	● 300
Taxas de juros em moedas estrangeiras			
Dólar canadense	● 200	● 300	● 150
Dólar dos Estados Unidos da América	● 200	● 300	● 150
Franco suíço	● 100	● 150	● 100
Euro	● 200	● 250	● 100
Libra esterlina	● 250	● 300	● 150
Iene japonês	● 100	● 100	● 100
Demais moedas	● 400	● 500	● 300

Moeda

Fator

Inclinação



SELIC

- Taxa Acumulada do Trimestre Anualizada



IPCA

- Variação Acumulada no Trimestre Anualizada



USD

- Valor Médio do Trimestre



PIB

- Taxa de Variação do Trimestre em Relação ao mesmo Trimestre do Ano Anterior



Desemprego

- Taxa Média do Trimestre



Modelo Interno

TEBU – Cenário Base

Base	202603	202606	202609	202612	202703	202706	202709	202712	202803	202806	202809	202812
selic	0,15	0,14	0,13	0,12	0,12	0,11	0,11	0,10	0,10	0,10	0,10	0,10
ipca	0,06	0,04	0,03	0,05	0,06	0,02	0,03	0,04	0,06	0,02	0,02	0,04
usd	5,43	5,46	5,49	5,50	5,50	5,50	5,50	5,50	5,50	5,50	5,50	5,50
pib	0,02	0,02	0,02	0,02	0,01	0,01	0,02	0,03	0,03	0,02	0,02	0,01
desemp	0,07	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,08	0,07	0,07	0,07

Projeções
BCB

Modelo
Interno

SGS

Trimestrais

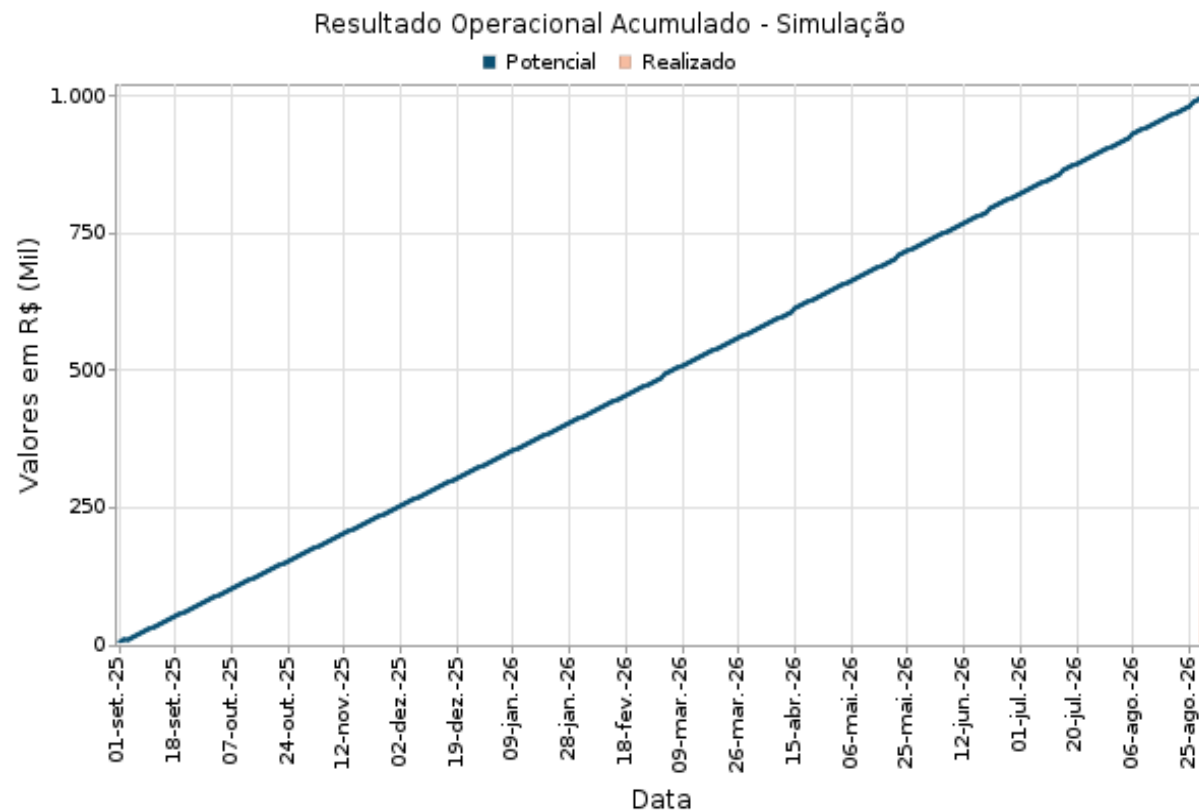
3 Anos

 Perspectiva	 Contábil	 Econômico
 Timeframe	Curto	Longo
 Descasamento	Tático	Estrutural
 Alvo	NII	EVE
 Objetivo	Controle VOL	Controle VOL
 Foco	DRE	Balanco
 Técnica	GAP	Duration
	Simulação NII	Simulação EVE
	EAR	VAR

Adaptado Euromoney

Carteira Hipotética 1

- Operação prefixada
- Valor presente: R\$ 10 MM
- Taxa Acc: 10% a.a.
- Vencimento: 1 ano



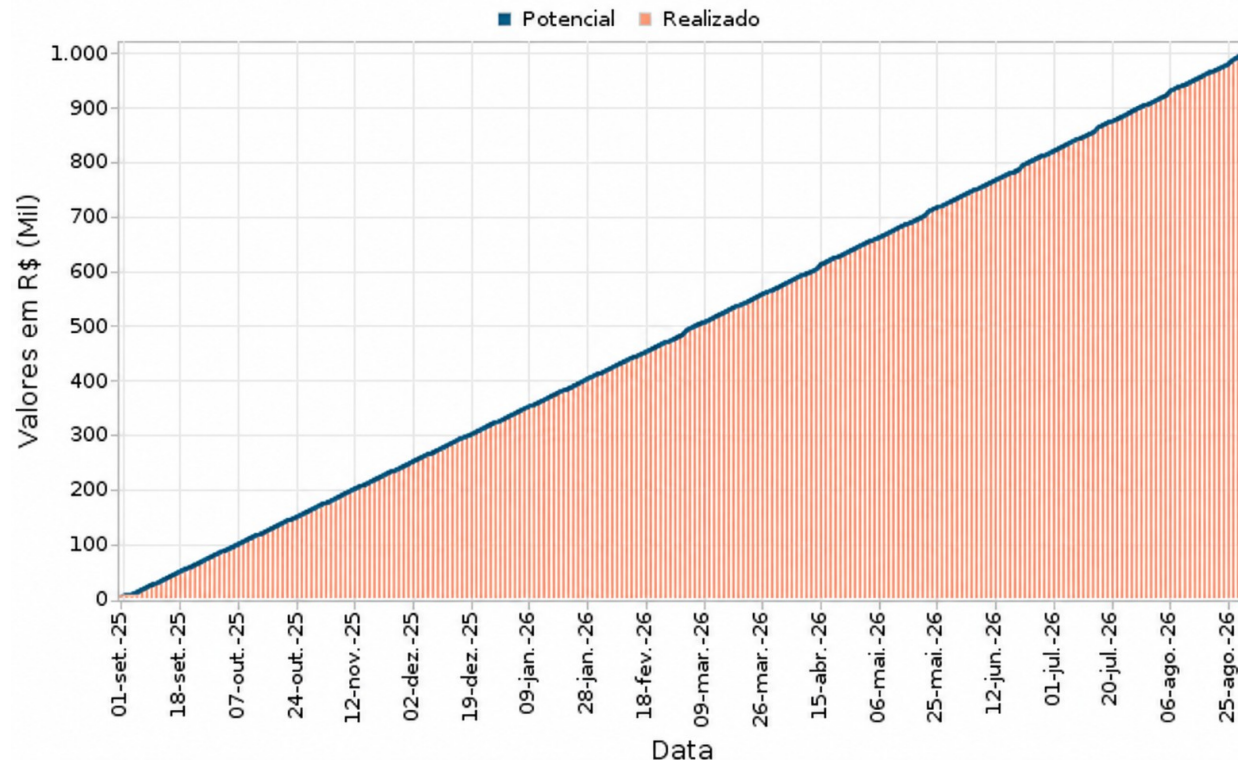
Carteira Hipotética 2

- Operação prefixada
- Valor presente: R\$ 10 MM
- Taxa Acc: 10% a.a.
- Vcto/roll: 1 dia



- Cenário de liquidez
- Rolagem: 100%
- Taxa acruada: 10% a.a.
- Vencimento final 1 ano

Resultado Operacional Acumulado - Simulação

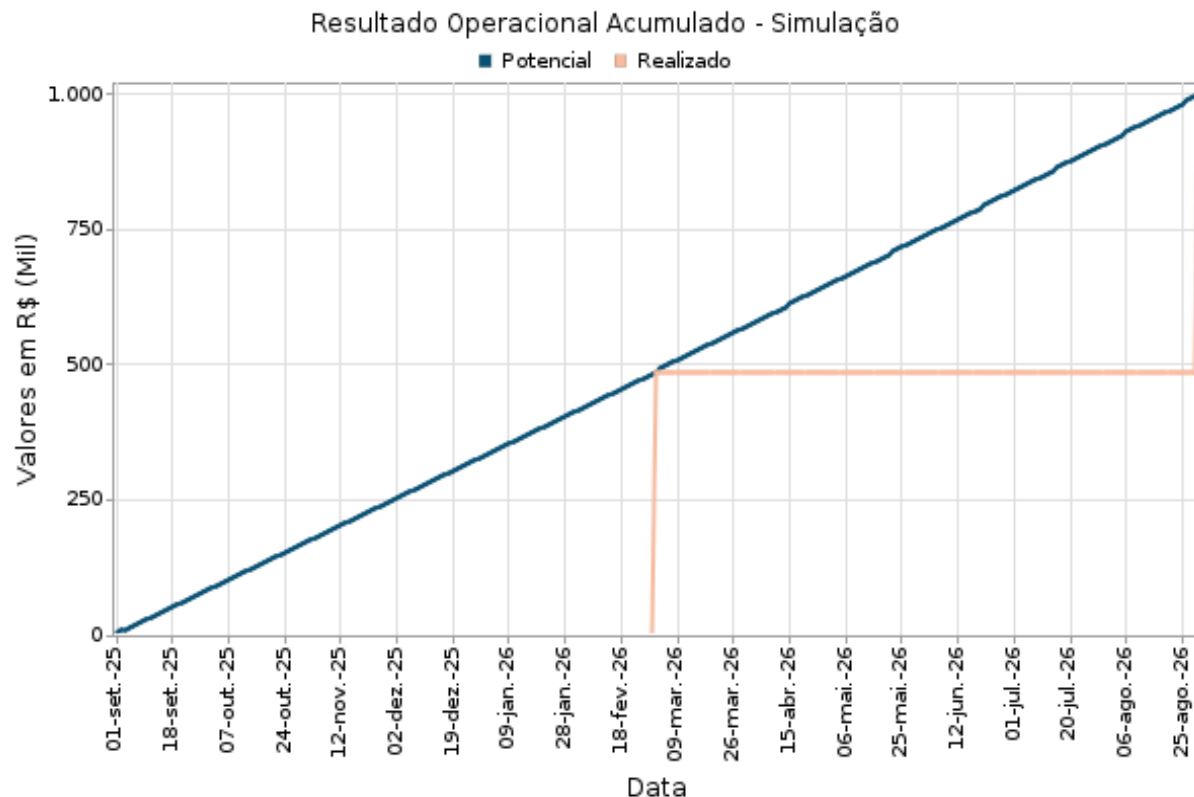


Carteira Hipotética 3

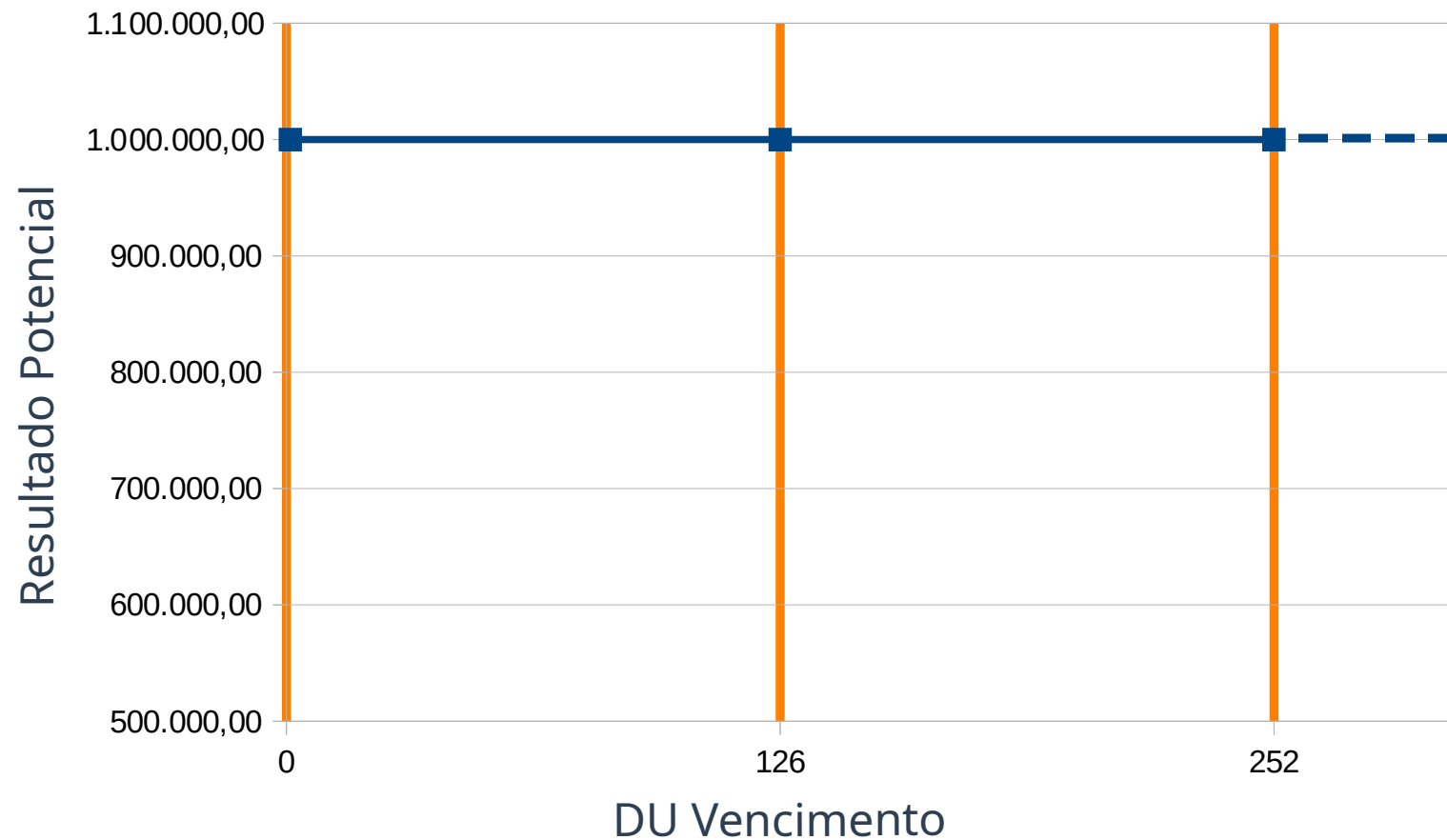
- Operação prefixada
- Valor presente: R\$ 10 MM
- Taxa Acc: 10% a.a.
- Vcto/roll: 126 dias úteis



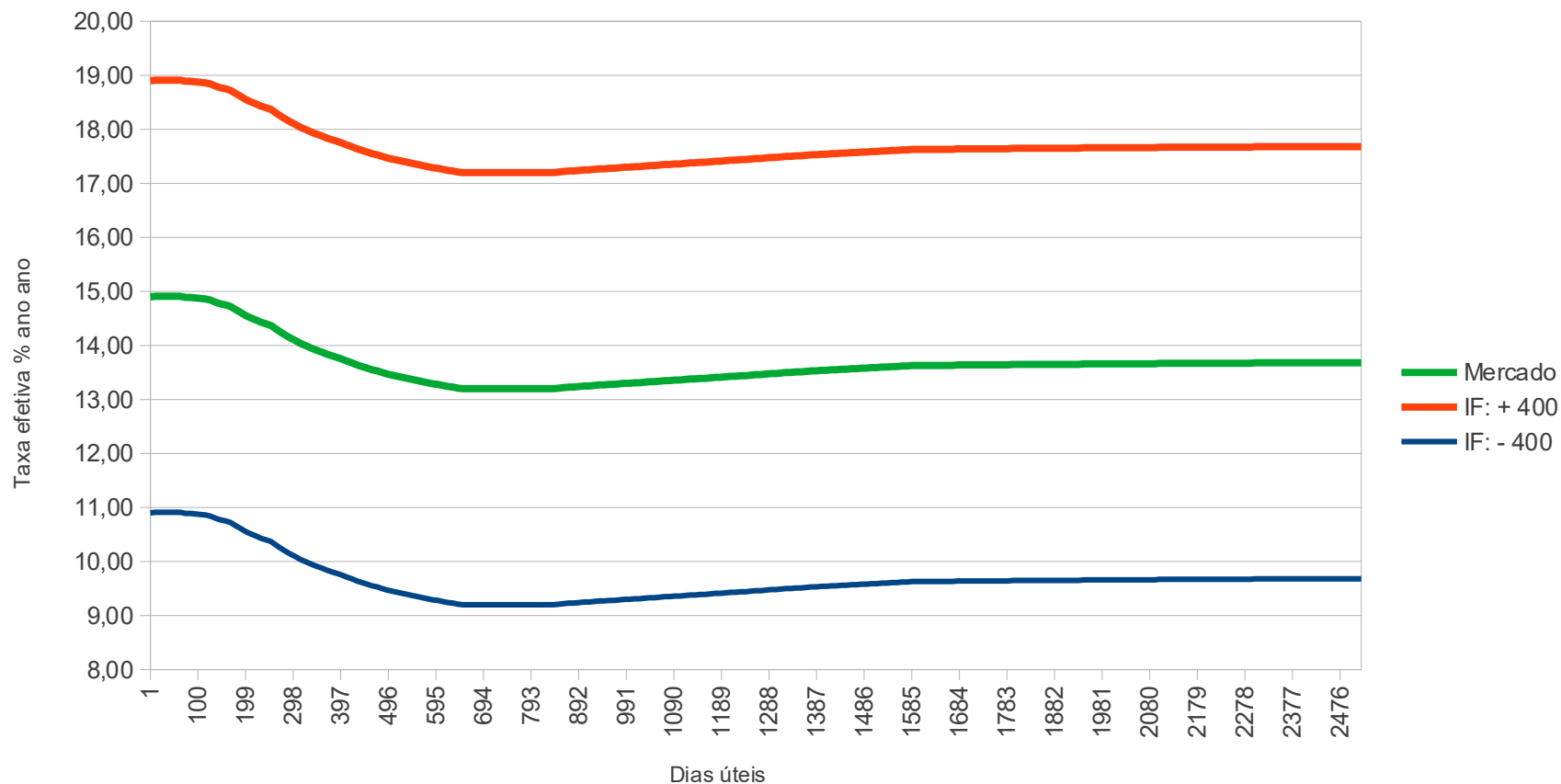
- Cenário de liquidez
- Rolagem: 100%
- Taxa acruada: 10% a.a.
- Vencimento final: 1 ano



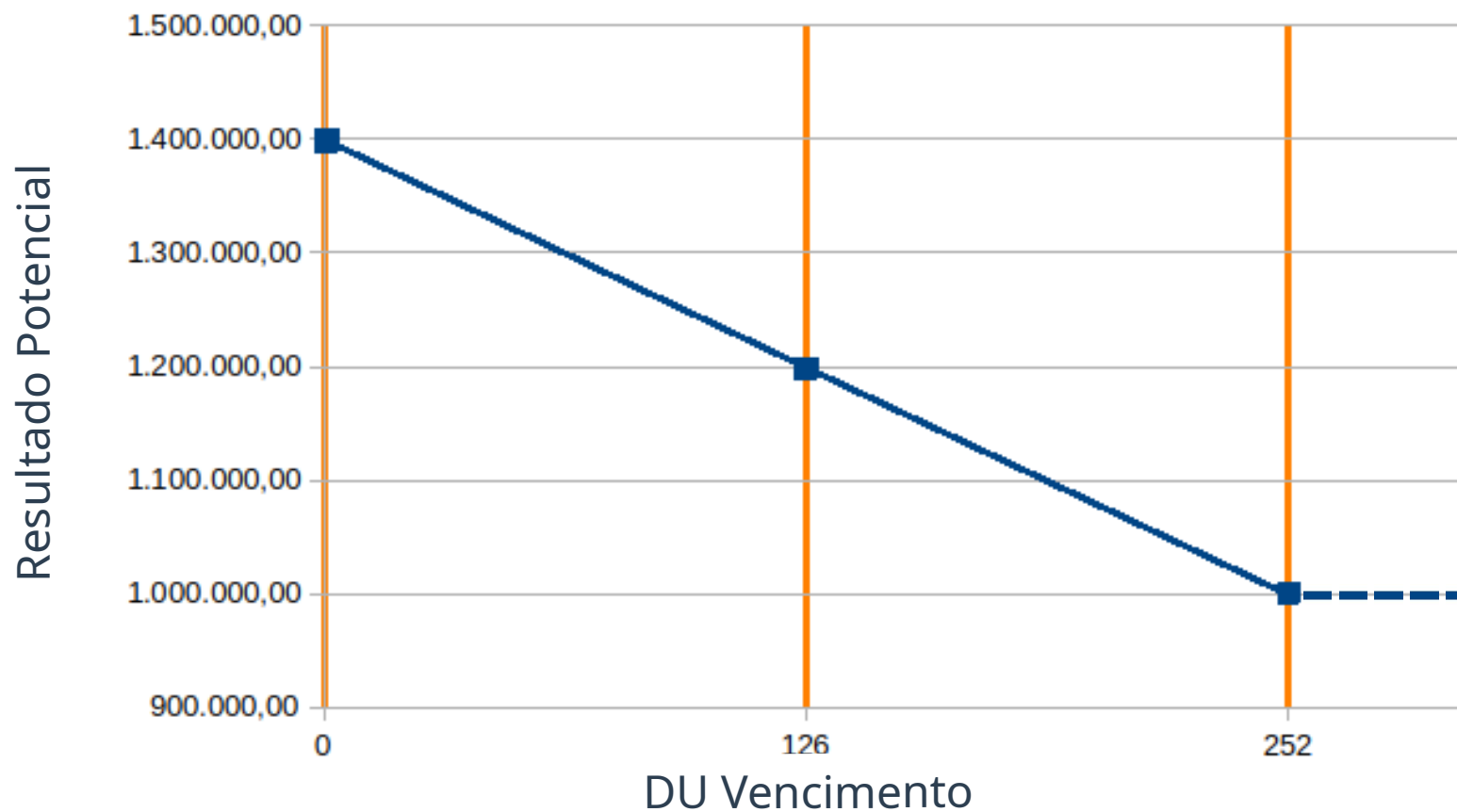
Resultado dos Cases - Pré



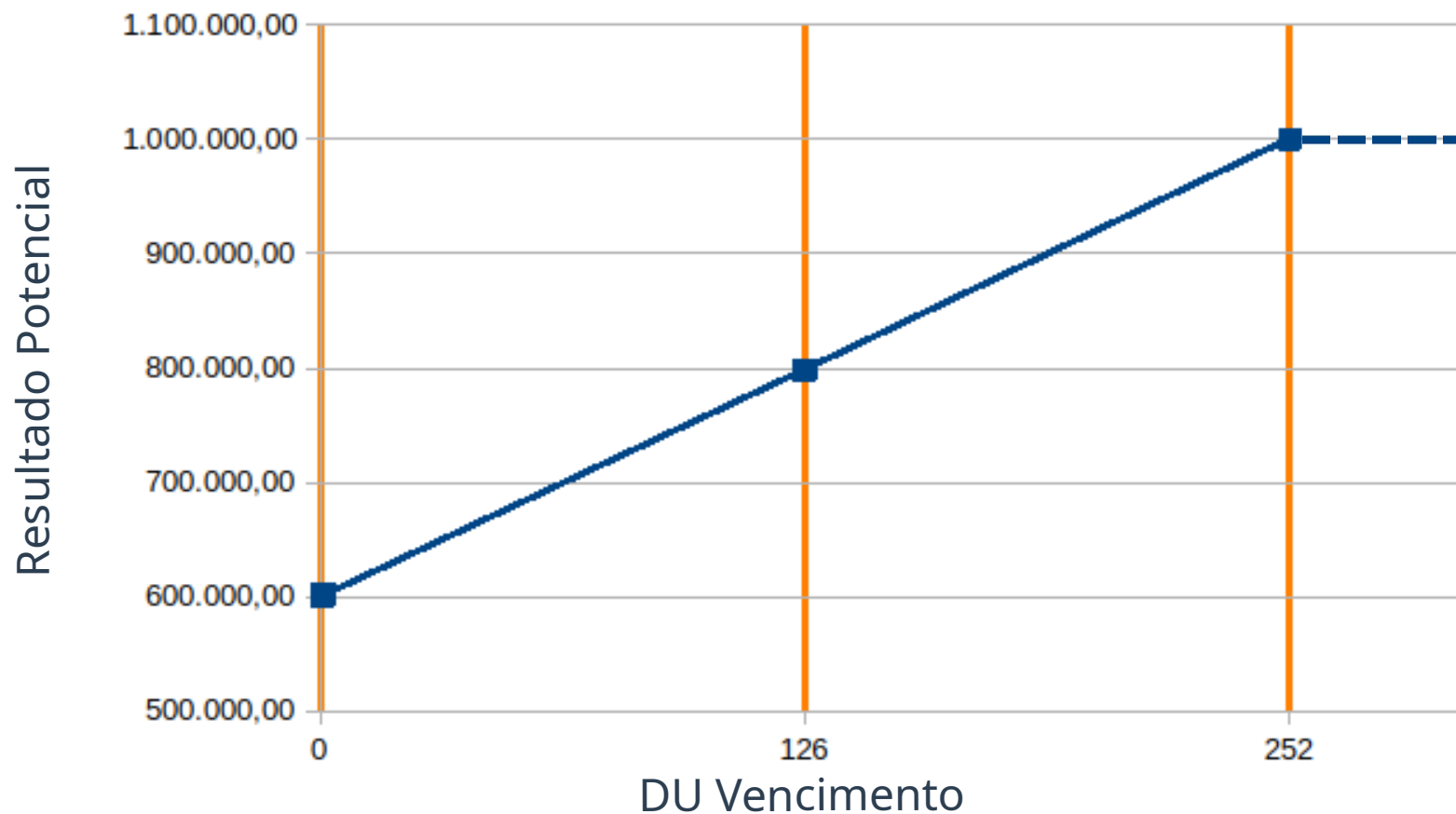
Choque Curva Pré Bacen



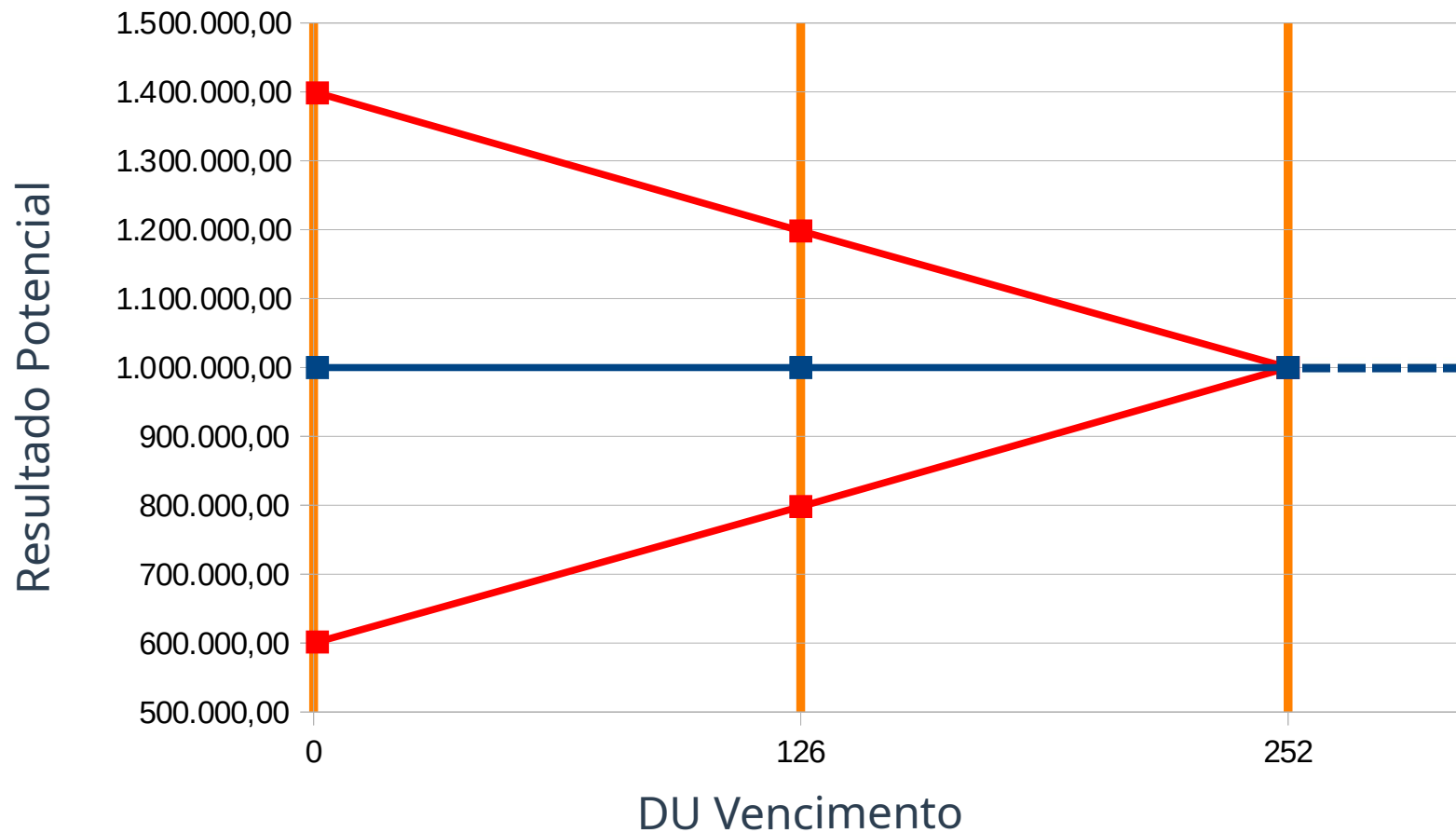
Resultados dos Choques: + 400 bp - Pré



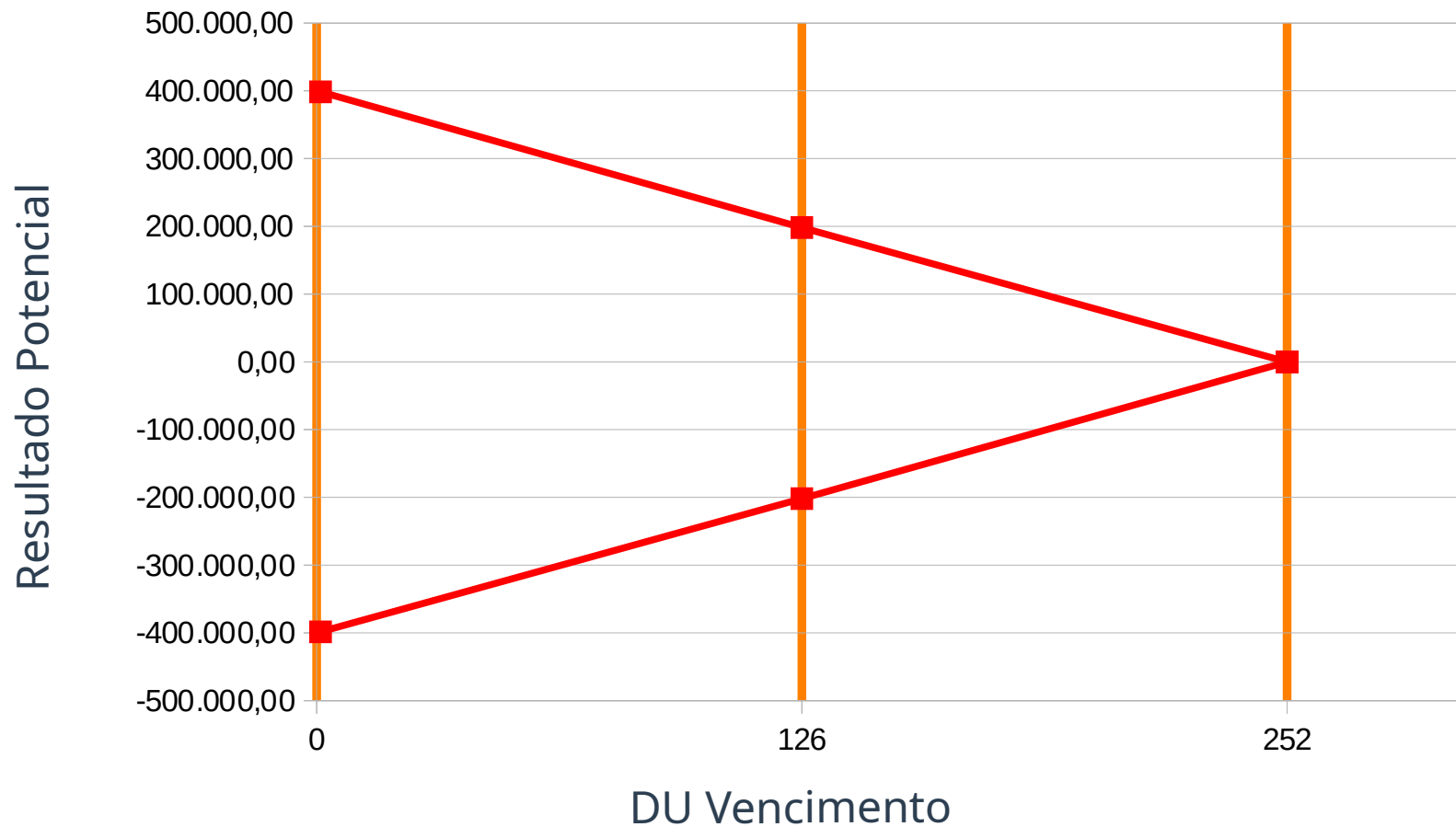
Resultados dos Choques: - 400 bp - Pré



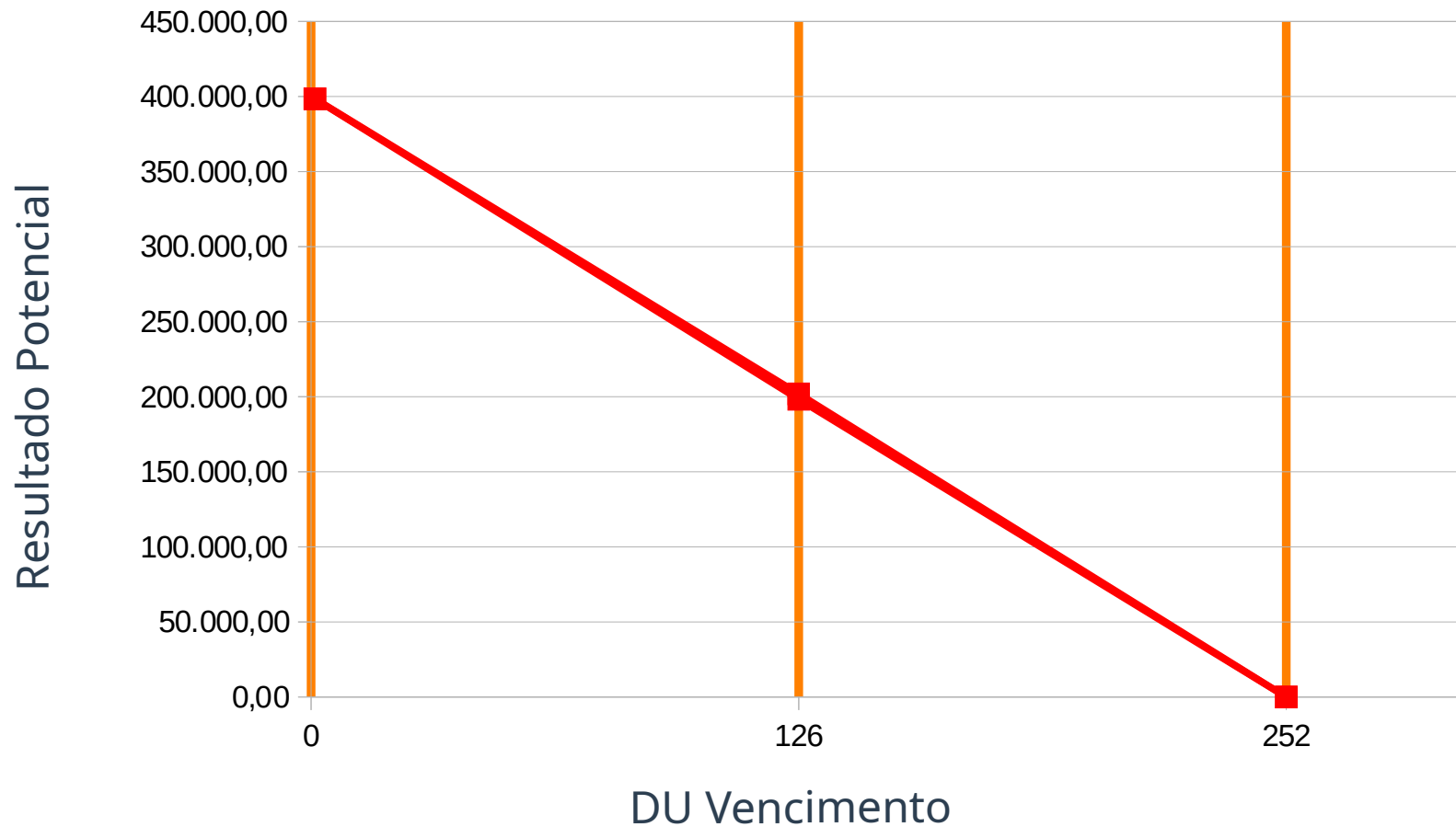
Resultados dos Choques 3 *Cases* - Pré



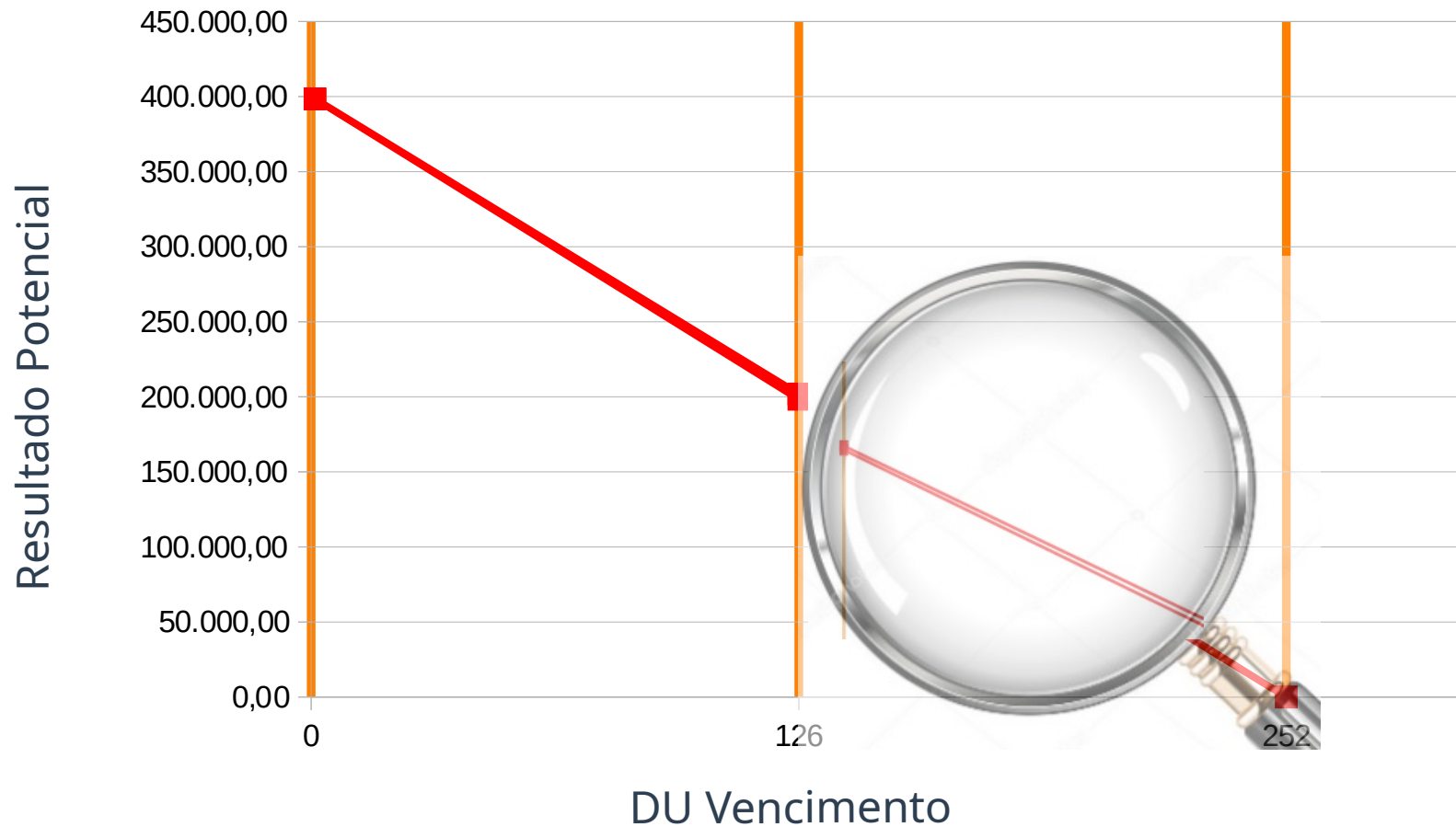
Resultados dos Choques 3 *Cases* - Pré



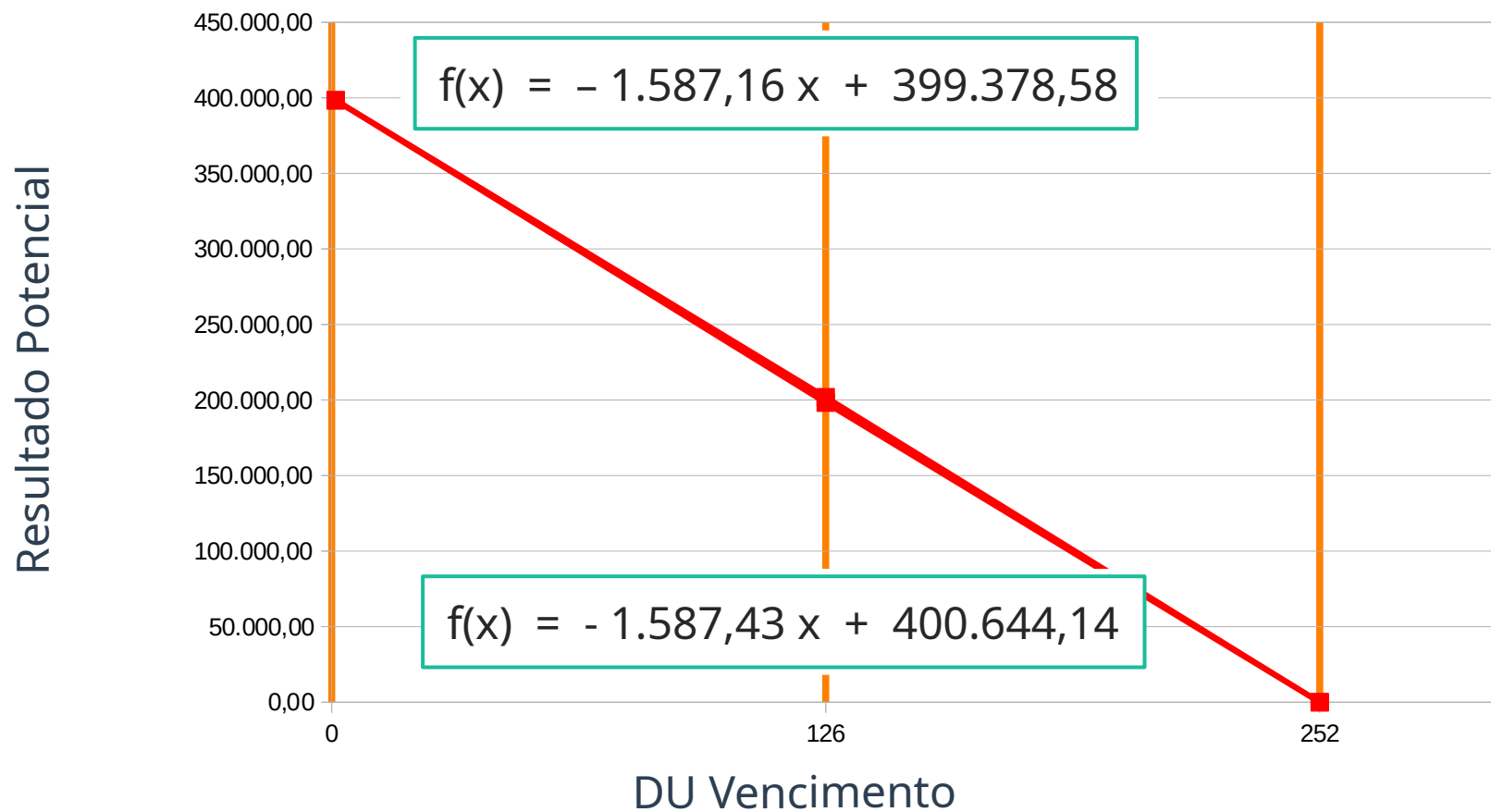
Resultados dos Choques 3 *Cases* - Pré



Resultados dos Choques 3 *Cases* - Pré

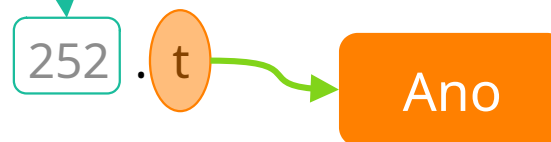


Função Delta por Módulo - Pré

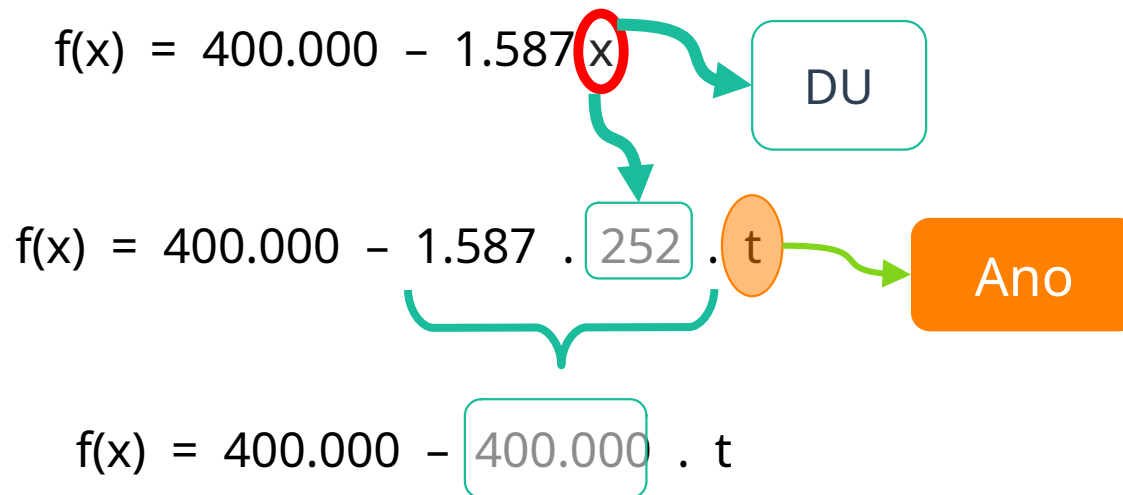


$$f(x) = 400.000 - 1.587 x$$

$$f(x) = 400.000 - 1.587x$$


$$f(x) = 400.000 - 1.587 \cdot 252 \cdot t$$


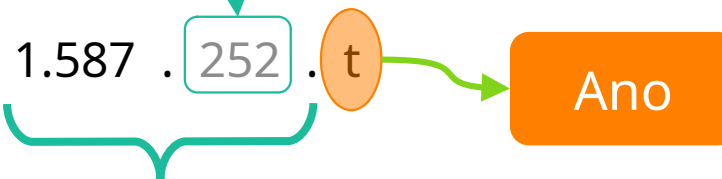
Trabalhando Equação 3876 - Pré

$$\begin{aligned} f(x) &= 400.000 - 1.587 \cdot x && \text{DU} \\ f(x) &= 400.000 - 1.587 \cdot 252 \cdot t && \text{Ano} \\ f(x) &= 400.000 - 400.000 \cdot t \end{aligned}$$


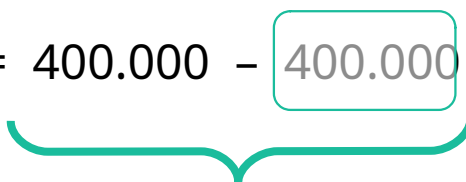
Trabalhando Equação 3876 - Pré

$$f(x) = 400.000 - 1.587 \cdot x$$


DU

$$f(x) = 400.000 - 1.587 \cdot 252 \cdot t$$


Ano

$$f(x) = 400.000 - 400.000 \cdot t$$


$$f(x) = -400.000 \cdot (t - 1)$$

$$f(x) = 400.000 - 1.587 \cancel{x}$$

DU

$$f(x) = 400.000 - 1.587 \cdot 252 \cdot t$$

Ano

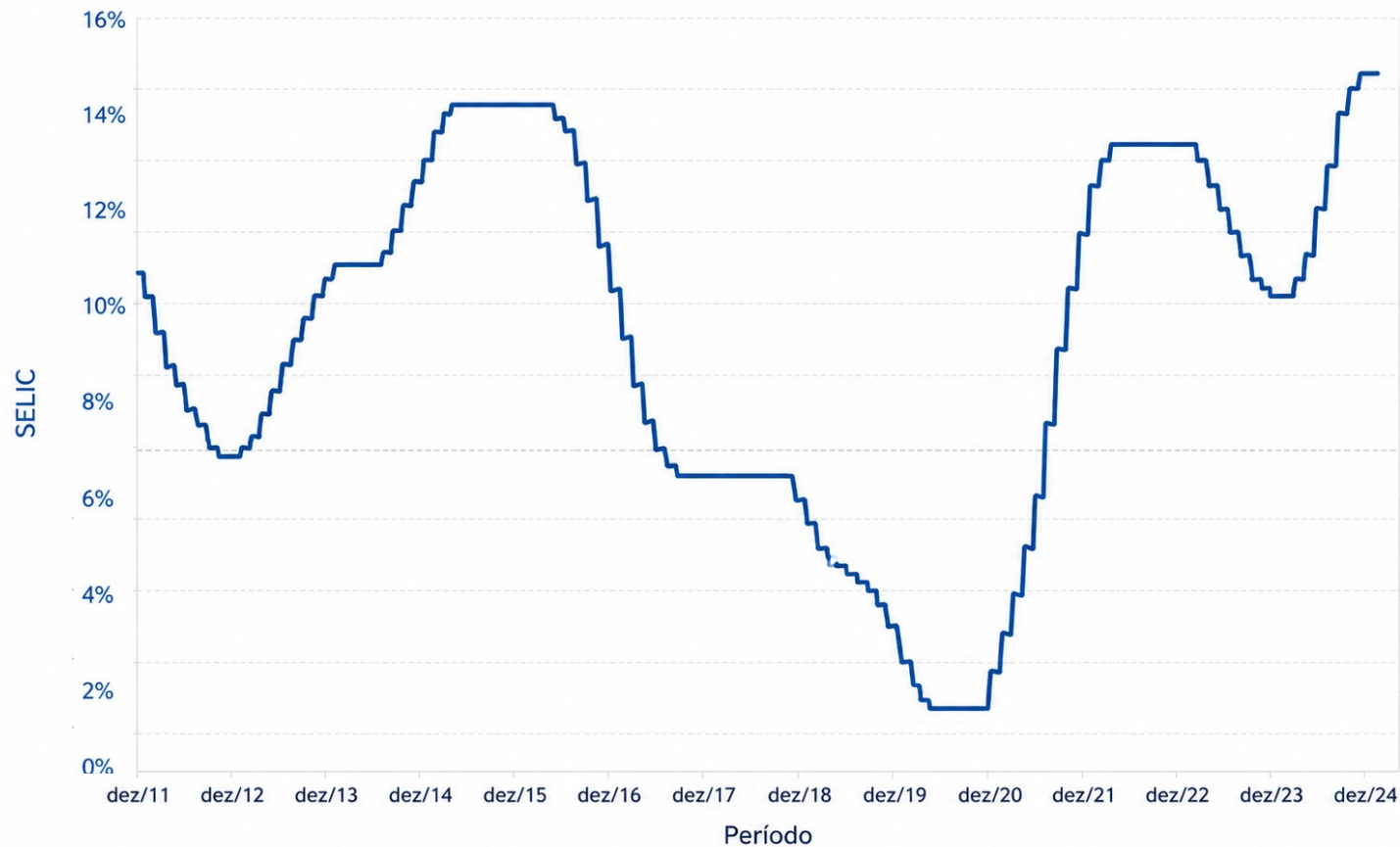
$$f(x) = 400.000 - 400.000 \cdot t$$

$$f(x) = -400.000 \cdot (t - 1)$$

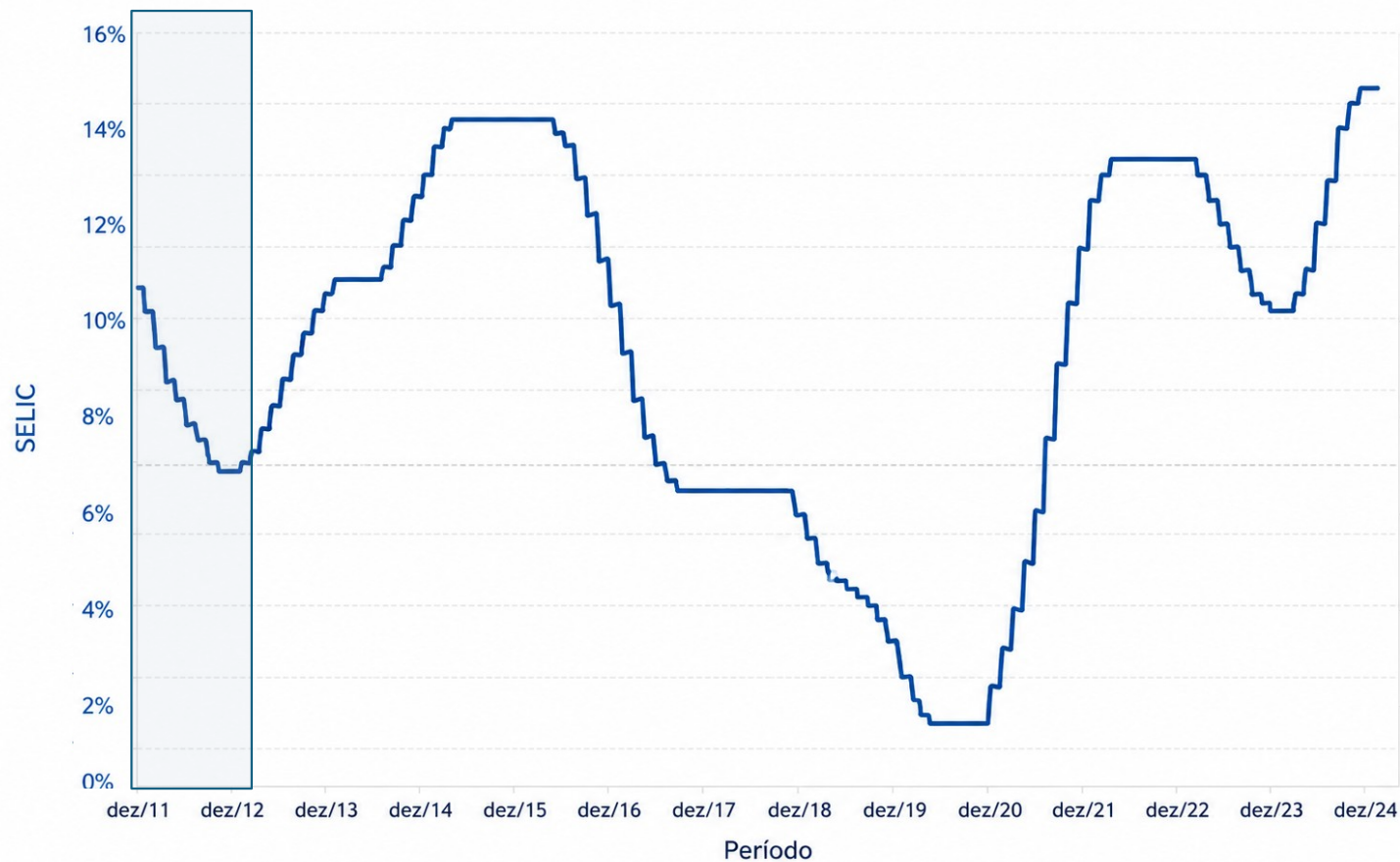
$$\Delta NII_{i,f}^{acc} = \Delta R_{i,f} \sum_{k=1}^7 CF_{i,f}(t_k) [t_k - T]$$

$$f(x) = -400 \text{ basis point} \cdot 10.000.000 \cdot (t_k - 1)$$

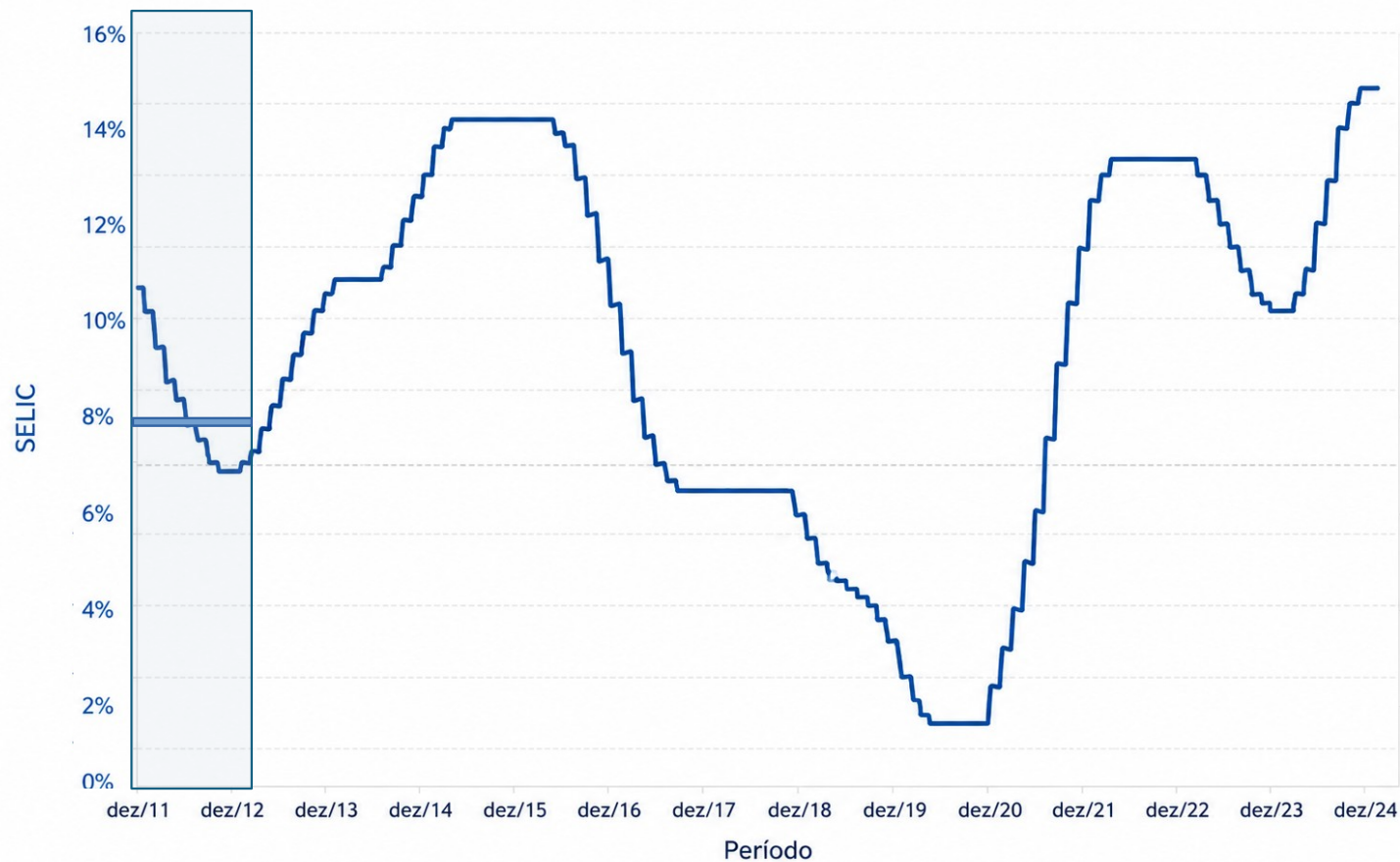
Variação da Selic – Acumulado 1 ano



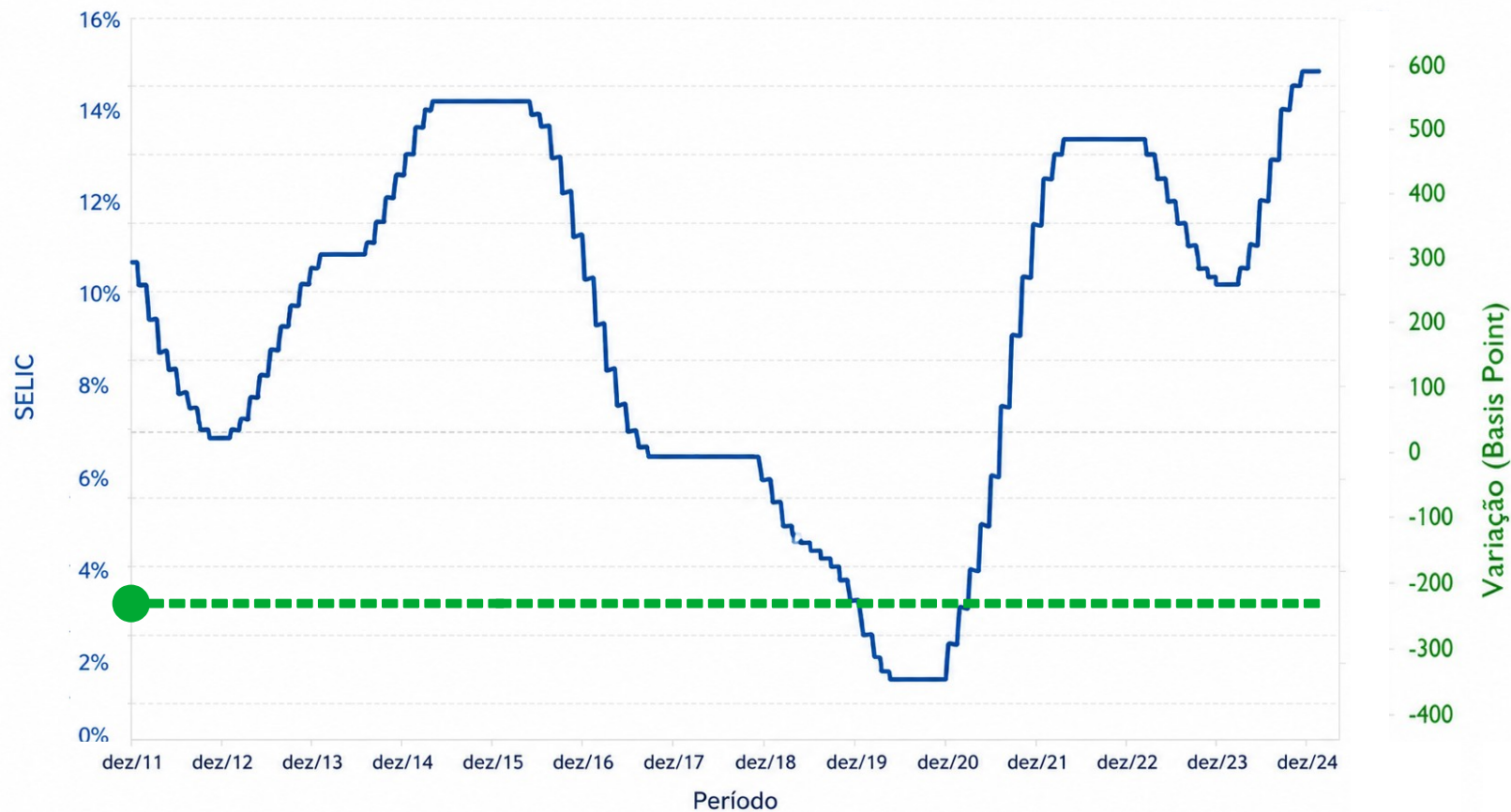
Variação da Selic – Acumulado 1 ano



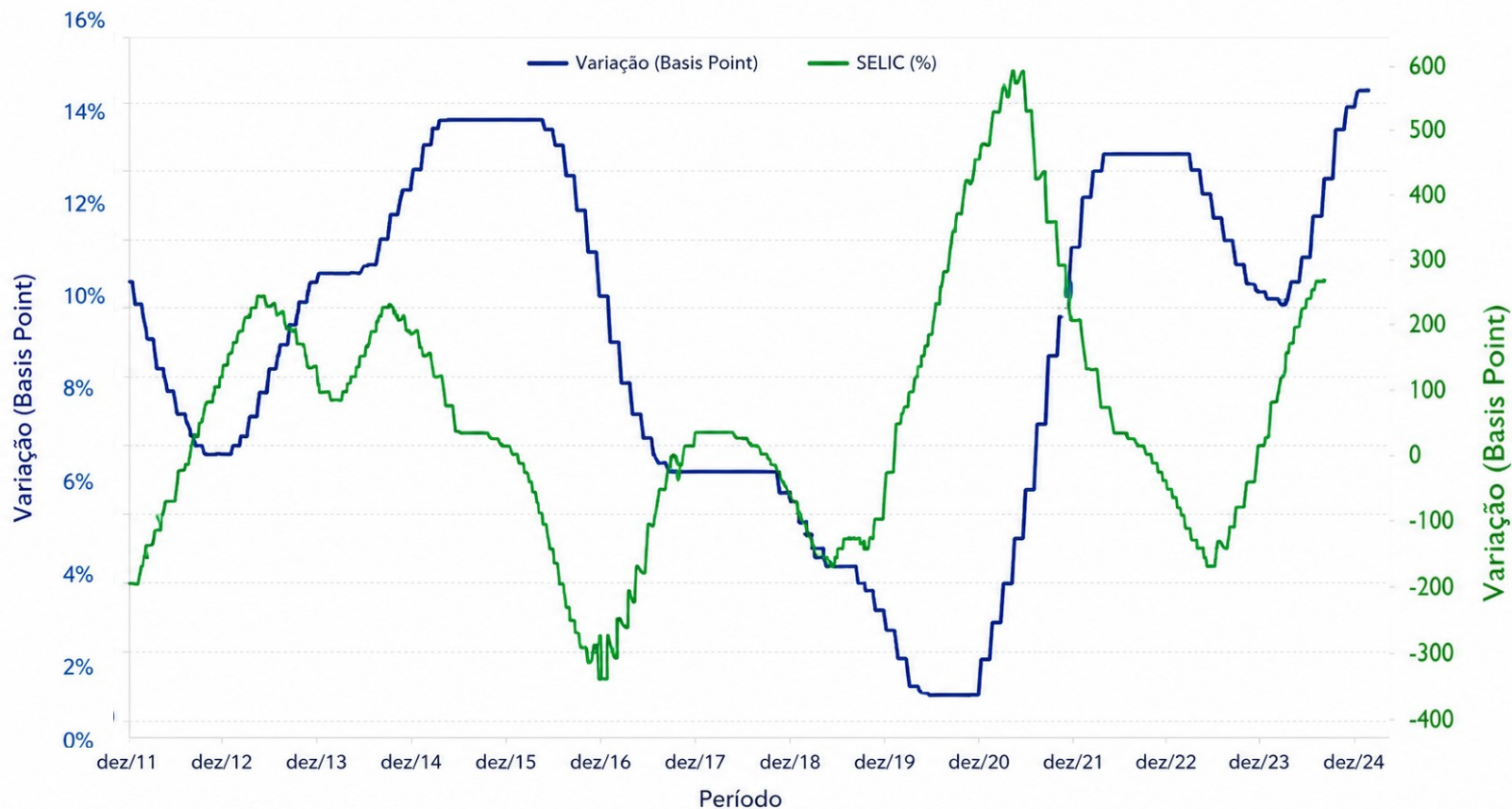
Variação da Selic – Acumulado 1 ano



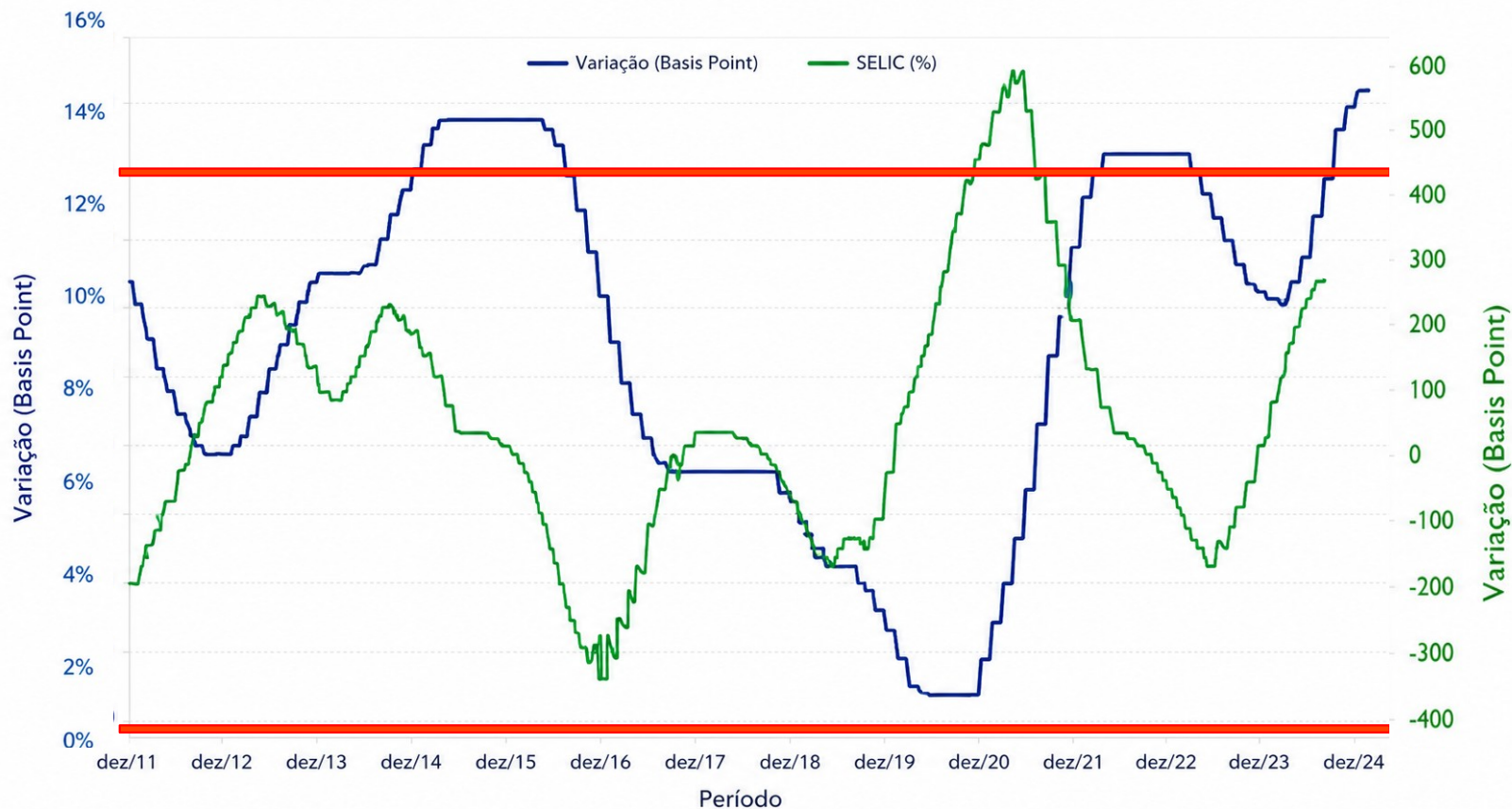
Variação da Selic – Acumulado 1 ano



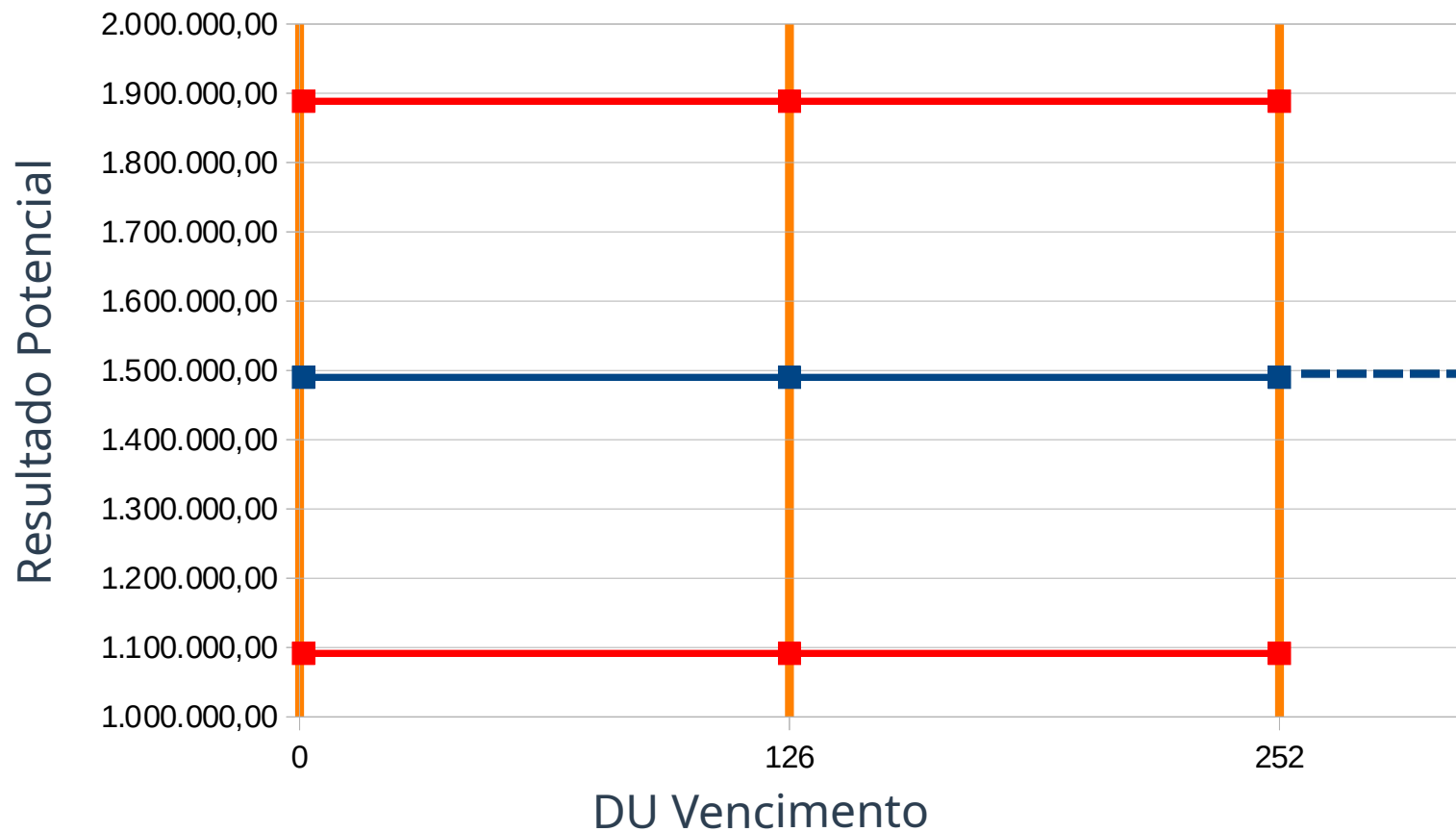
Variação da Selic – Acumulado 1 ano

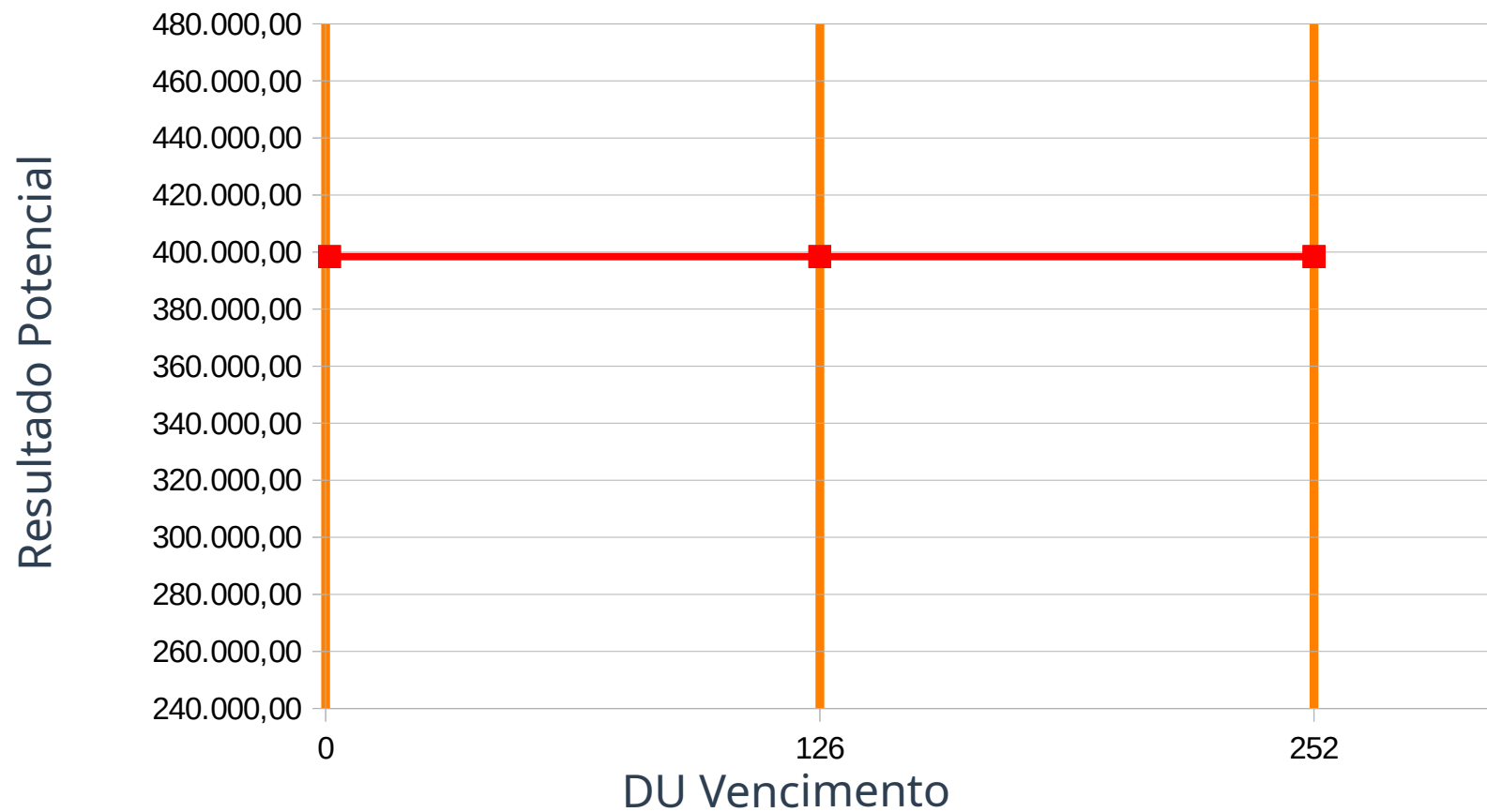


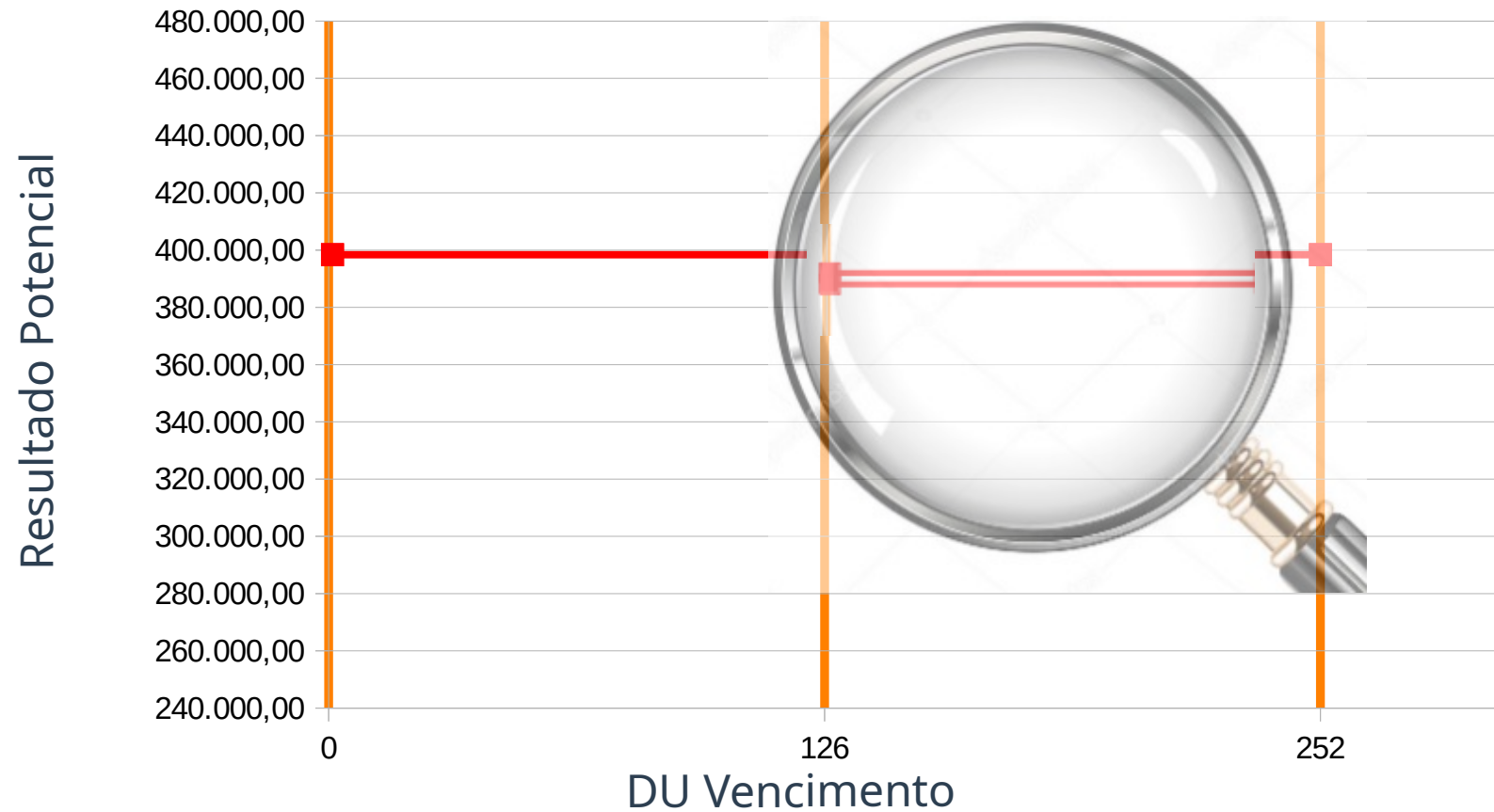
Variação da Selic – Acumulado 1 ano

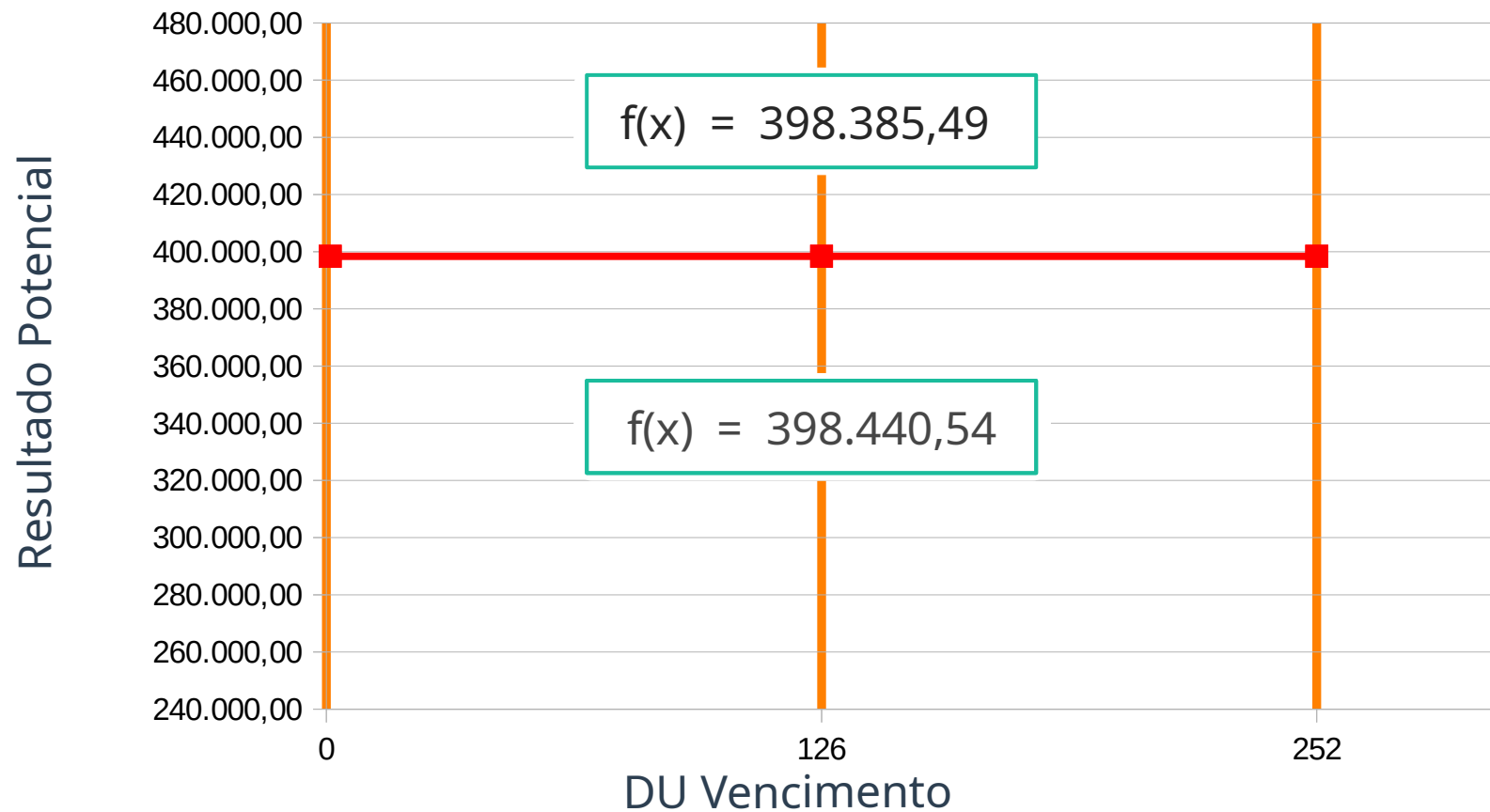


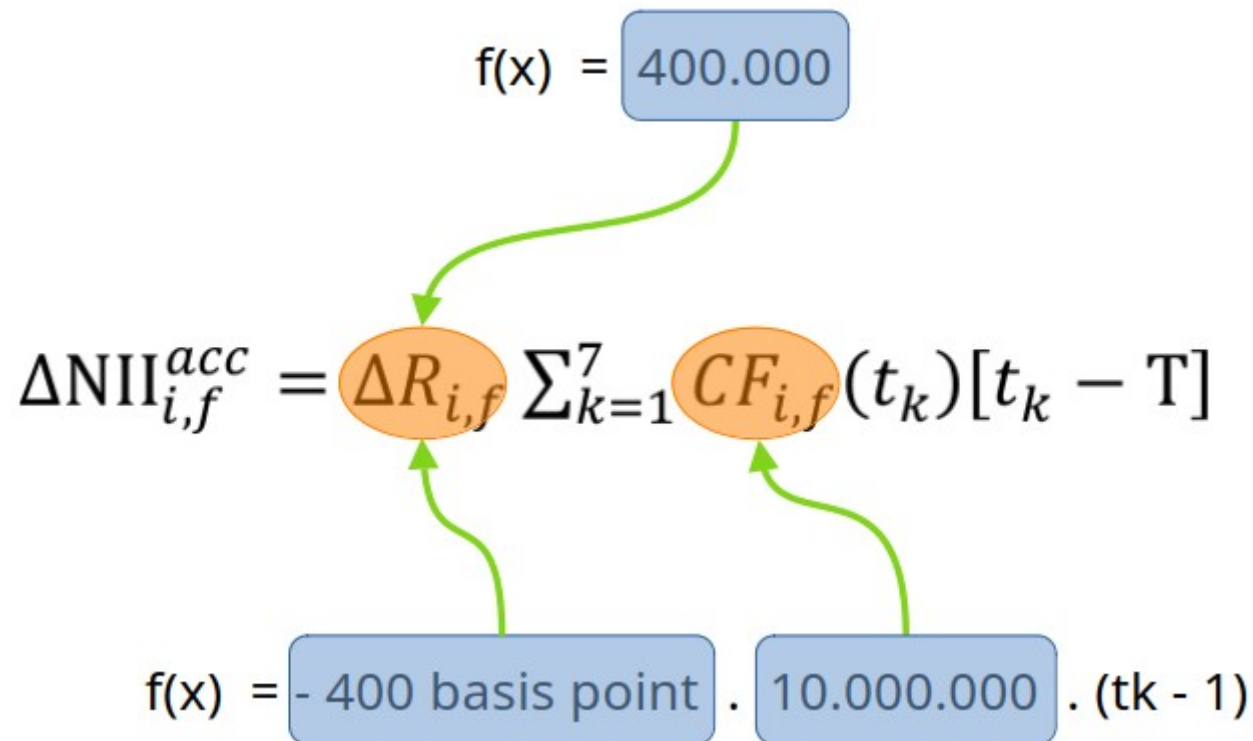
Resultados Choques – 100% da Selic











The diagram illustrates the calculation of $\Delta NII_{i,f}^{acc}$. It features a central formula with two variables, $\Delta R_{i,f}$ and $CF_{i,f}(t_k)$, highlighted in orange ovals. Green arrows indicate the flow of data from input boxes to these variables. The top input box, labeled $f(x) = 400.000$, points to $\Delta R_{i,f}$. The bottom input box, labeled $f(x) = -400 \text{ basis point} \cdot 10.000.000 \cdot (t_k - 1)$, points to $CF_{i,f}(t_k)$.

$$\Delta NII_{i,f}^{acc} = \Delta R_{i,f} \sum_{k=1}^7 CF_{i,f}(t_k) [t_k - T]$$

$f(x) = 400.000$

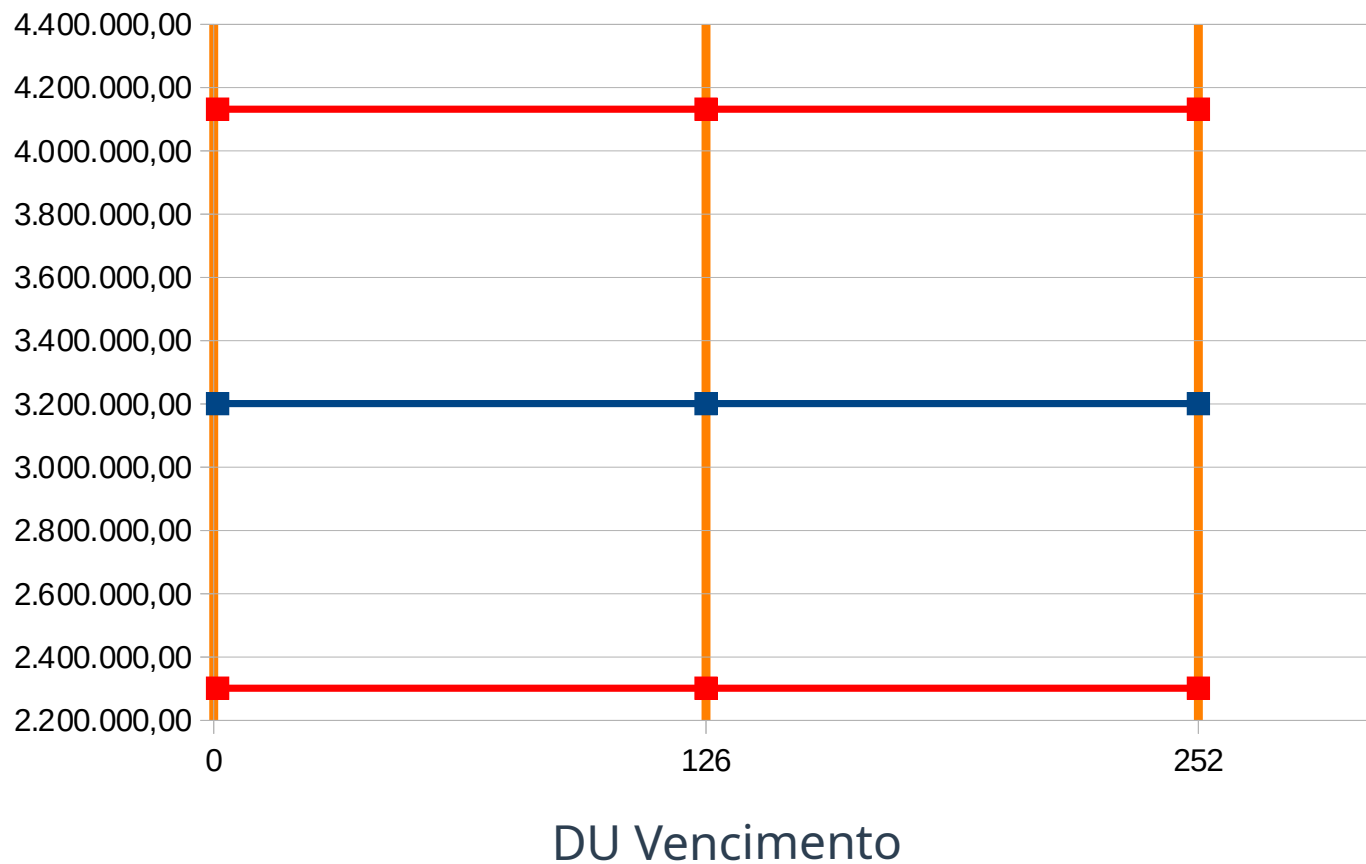
$f(x) = -400 \text{ basis point} \cdot 10.000.000 \cdot (t_k - 1)$

Repactuação – Delta NII

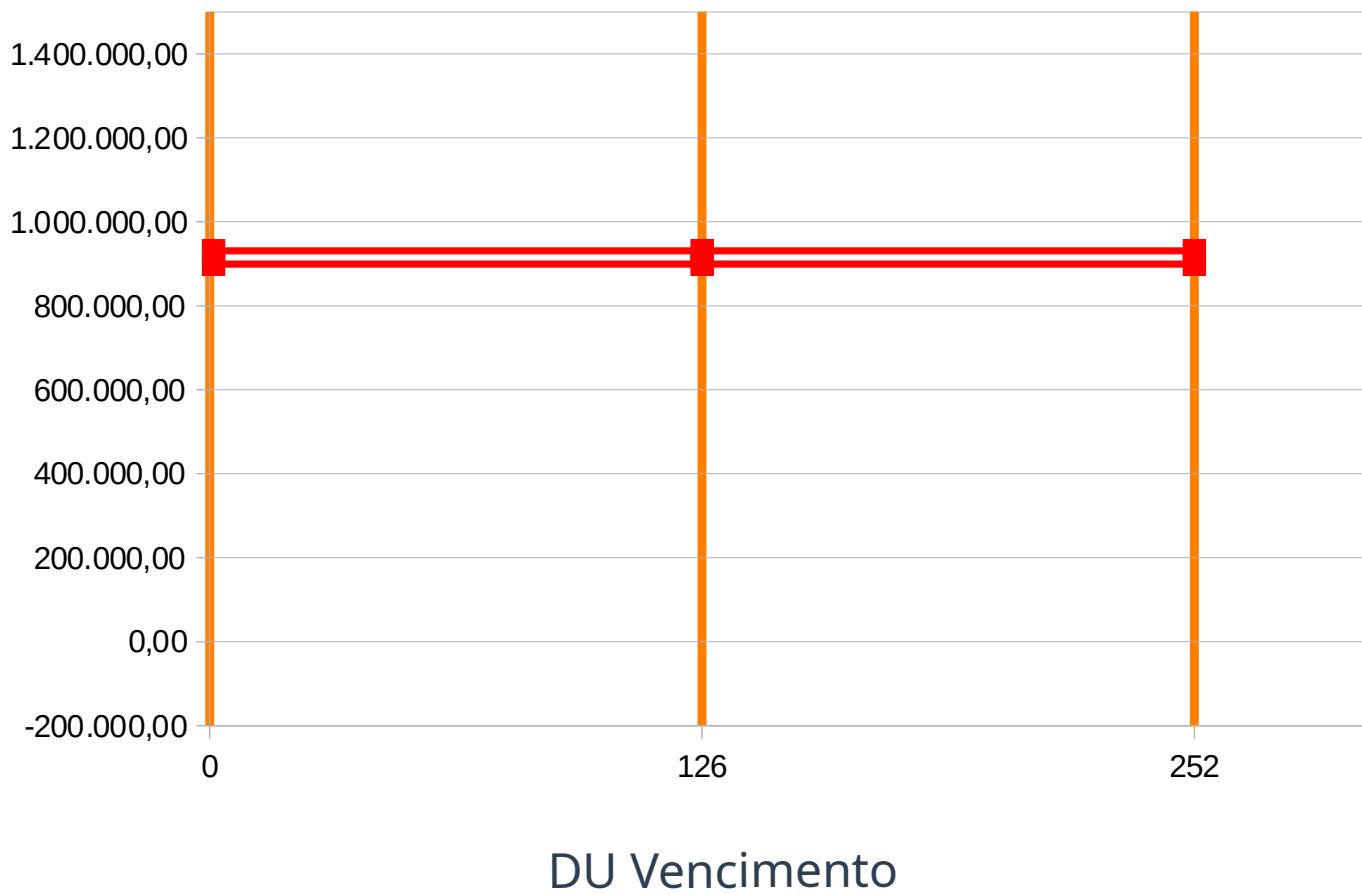


CDI SELIC	Próximo dia útil
TR	Data de aniversário
TBF	Quinto dia útil do mês
TLP TJLP	Primeiro dia do mês
IPCA IGPM	Data de divulgação dos índices

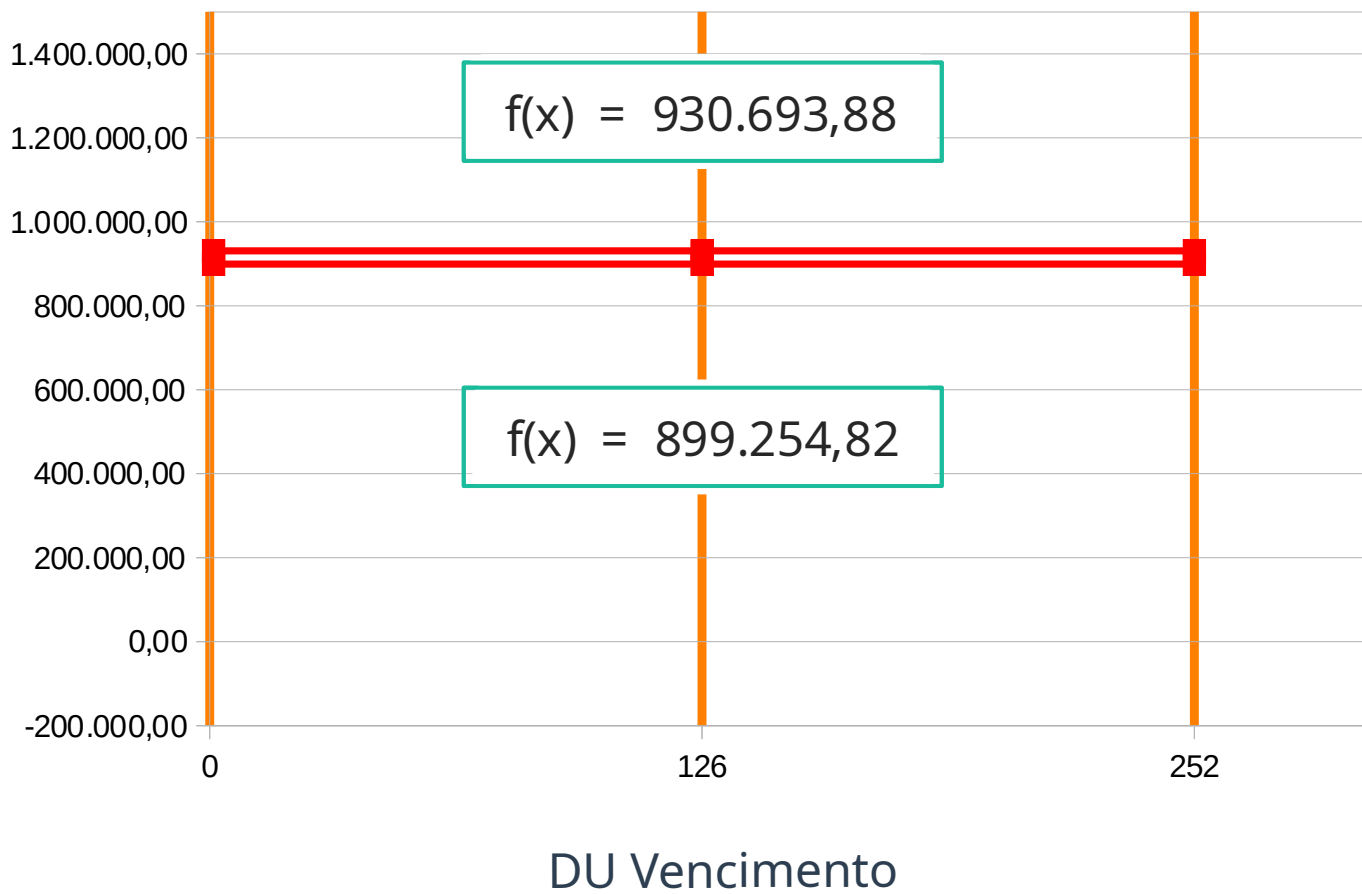
Resultado dos choques 200% da Selic



Resultado dos choques 200% da Selic



Resultado dos choques 200% da Selic



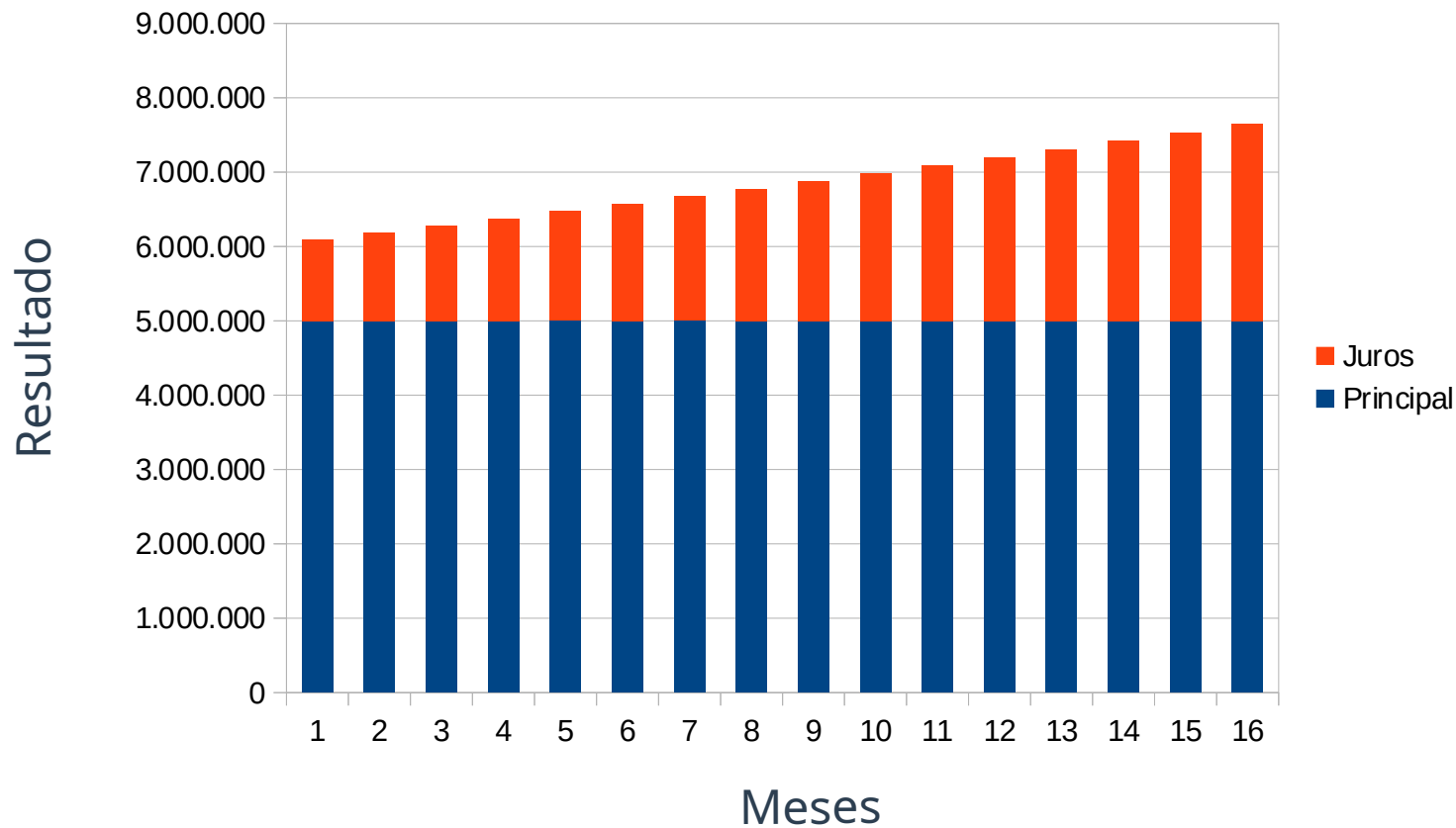
Resultado dos choques 200% da Selic

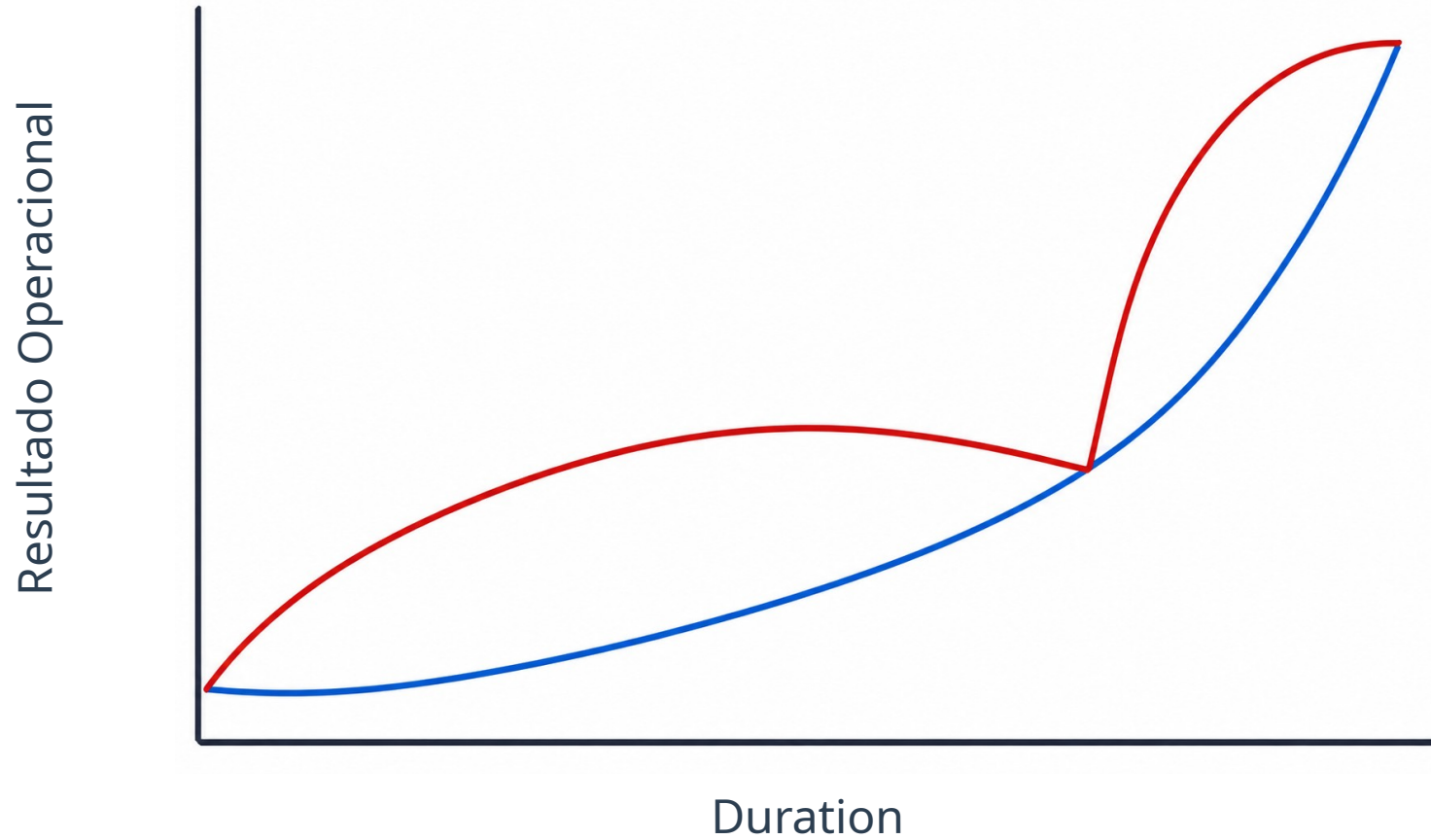
$$\Delta NII_{i,f}^{acc} = \Delta R_{i,f} \sum_{k=1}^7 CF_{i,f}(t_k) [t_k - T]$$

Diagram illustrating the calculation of $\Delta NII_{i,f}^{acc}$ based on the 200% Selic shock results:

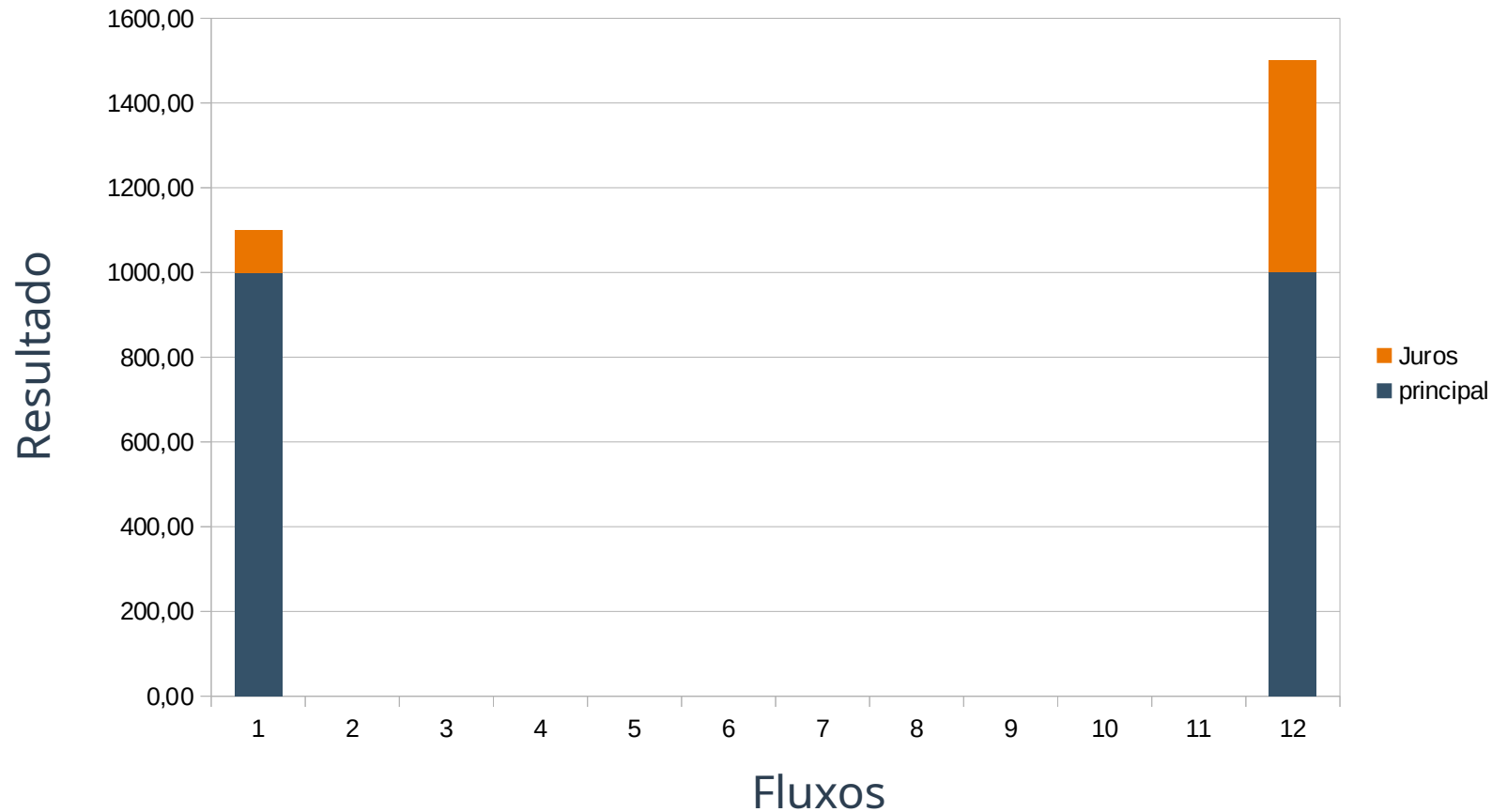
- The function $f(x) = 900.000$ is associated with $\Delta R_{i,f}$.
- The function $f(x) = -900 \text{ basis point} \cdot 10.000.000 \cdot (t_k - 1)$ is associated with $CF_{i,f}(t_k)$.

Selic 100% - Principal

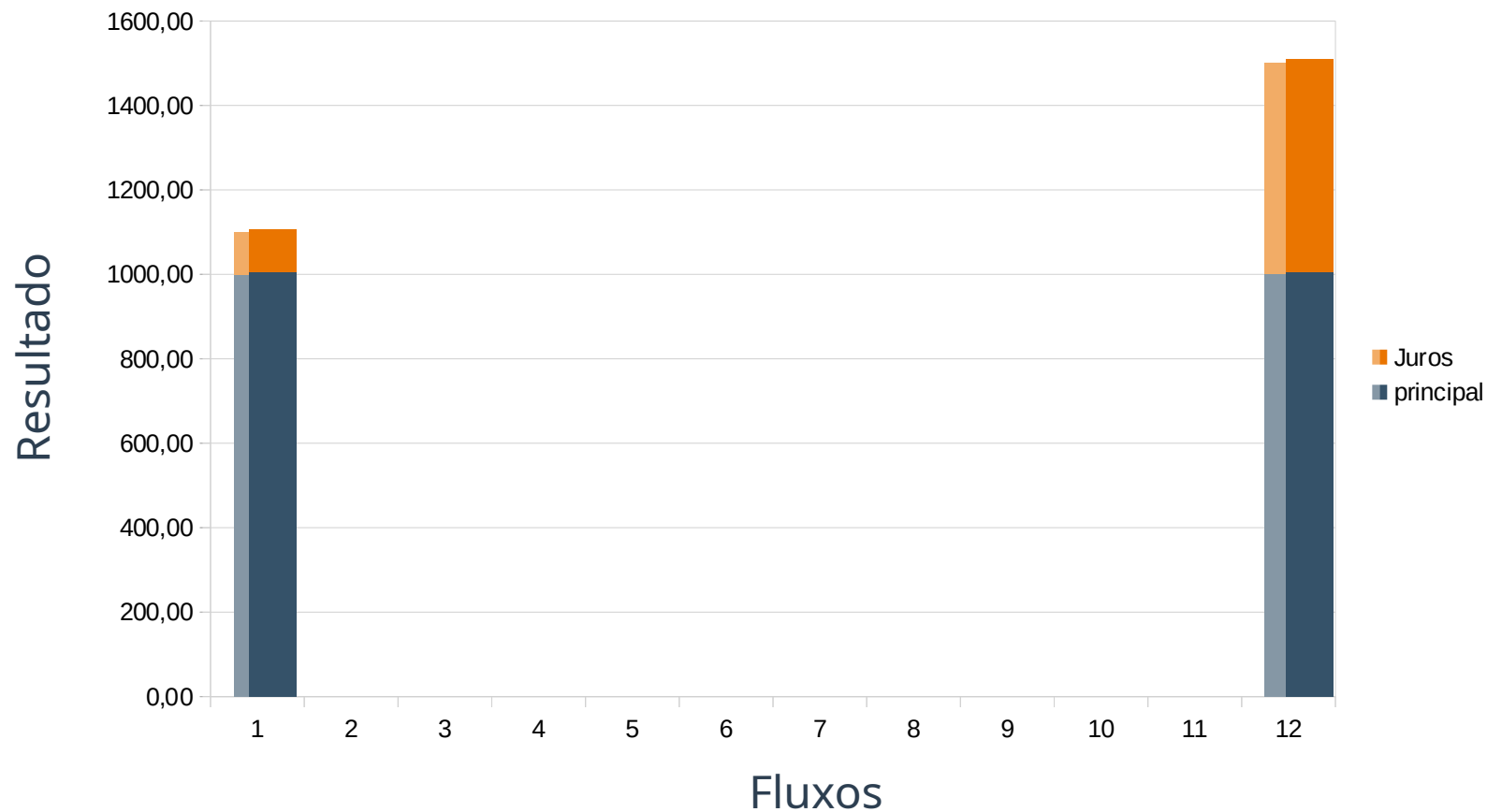




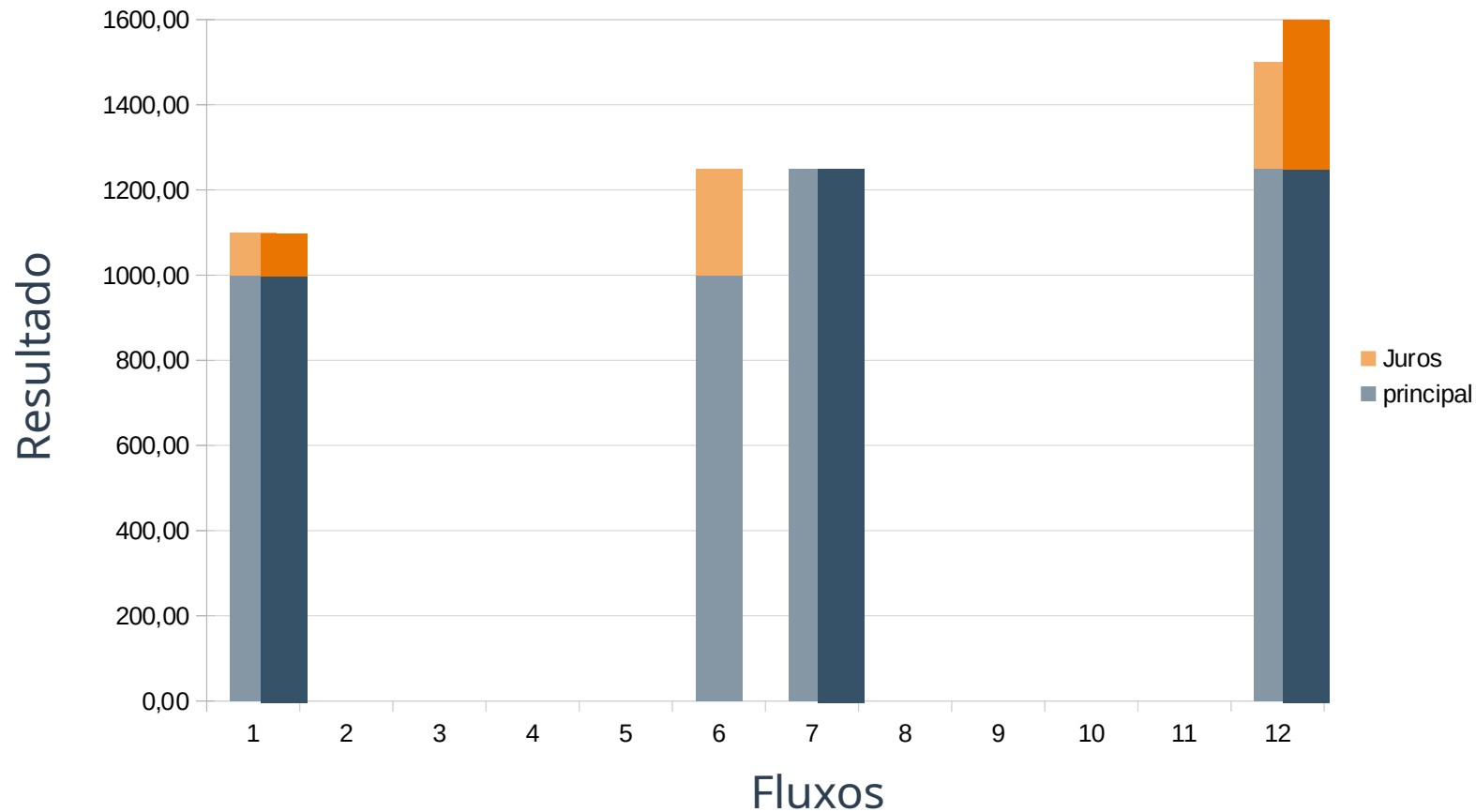
Visão Bullet 252 Cupom 12 meses



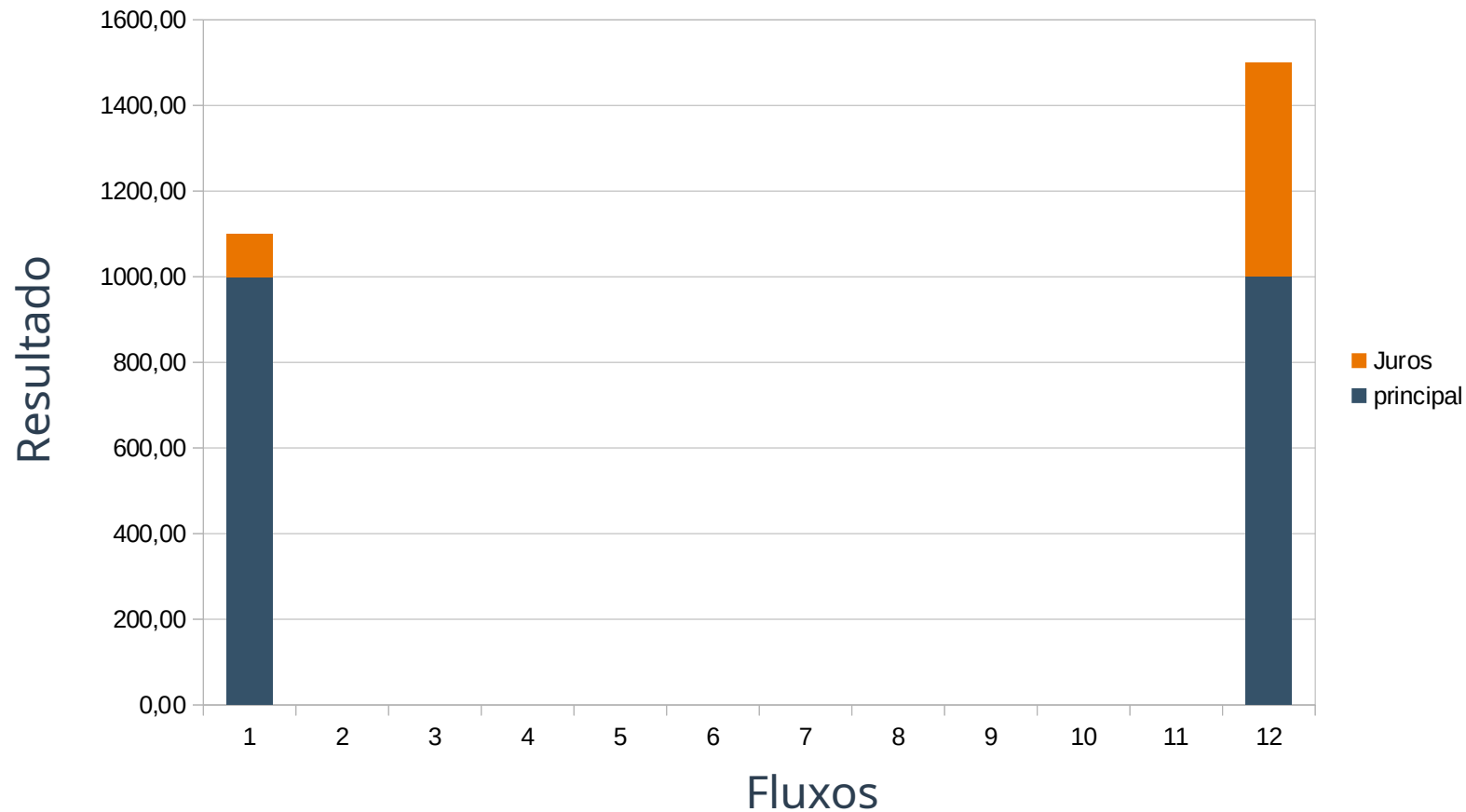
Visão Bullet 252 Cupom 12 meses



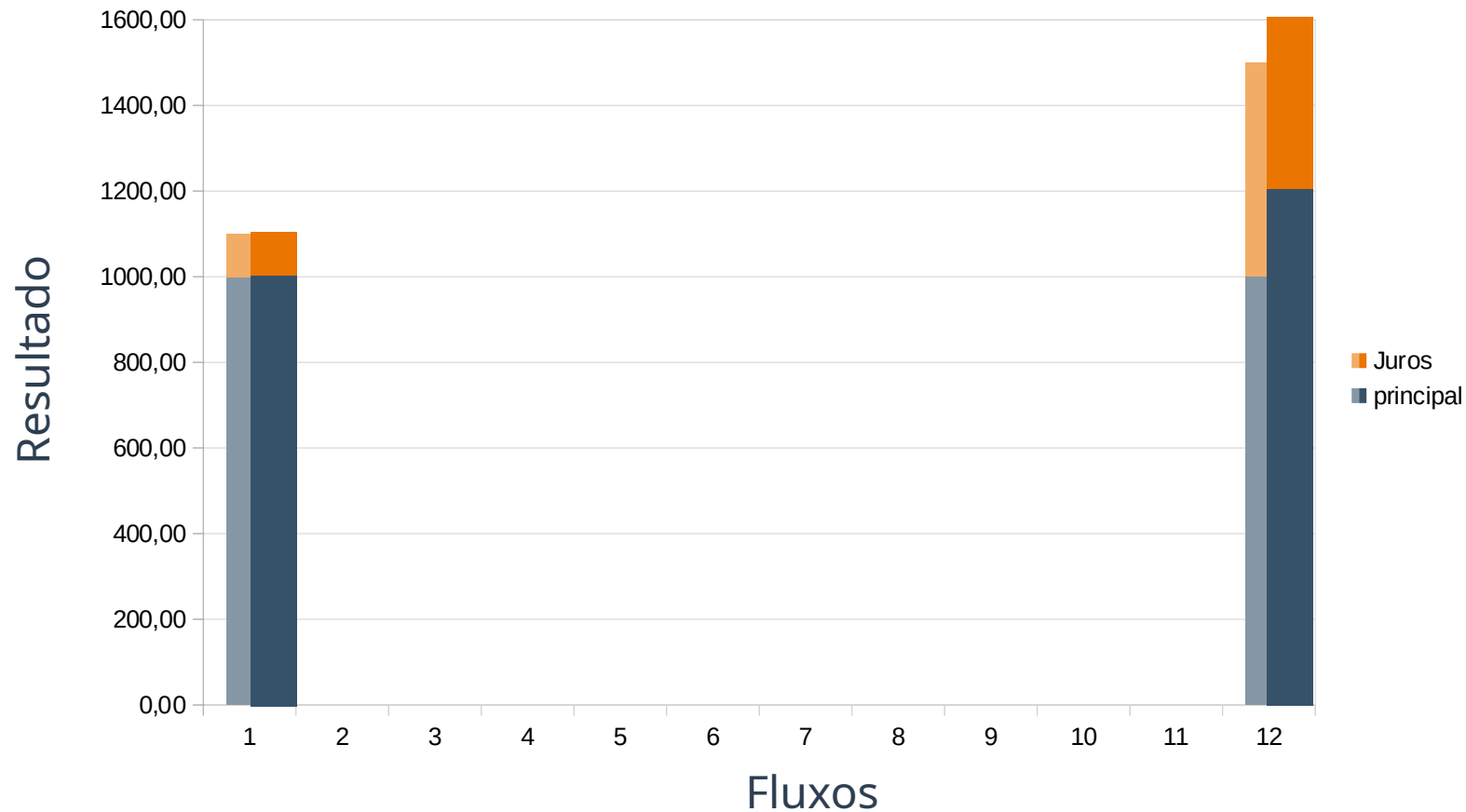
Visão Bullet 252 Cupom 6 meses



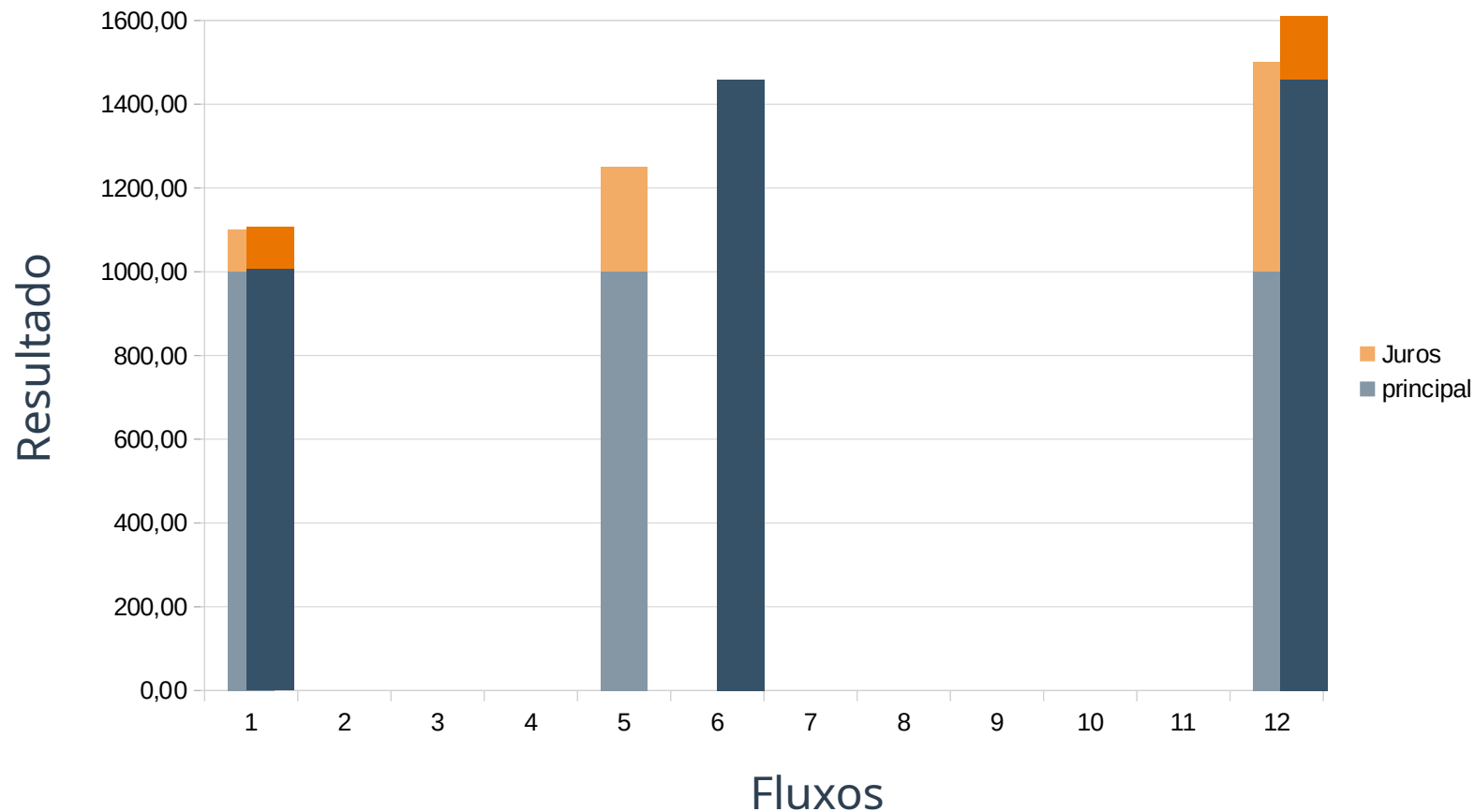
Visão Bullet 252 Índice 12 meses



Visão Bullet 252 Índice 12 meses



Visão Bullet 252 índice 12 meses



Definir suas categorias internas
(*buckets*) de prazo

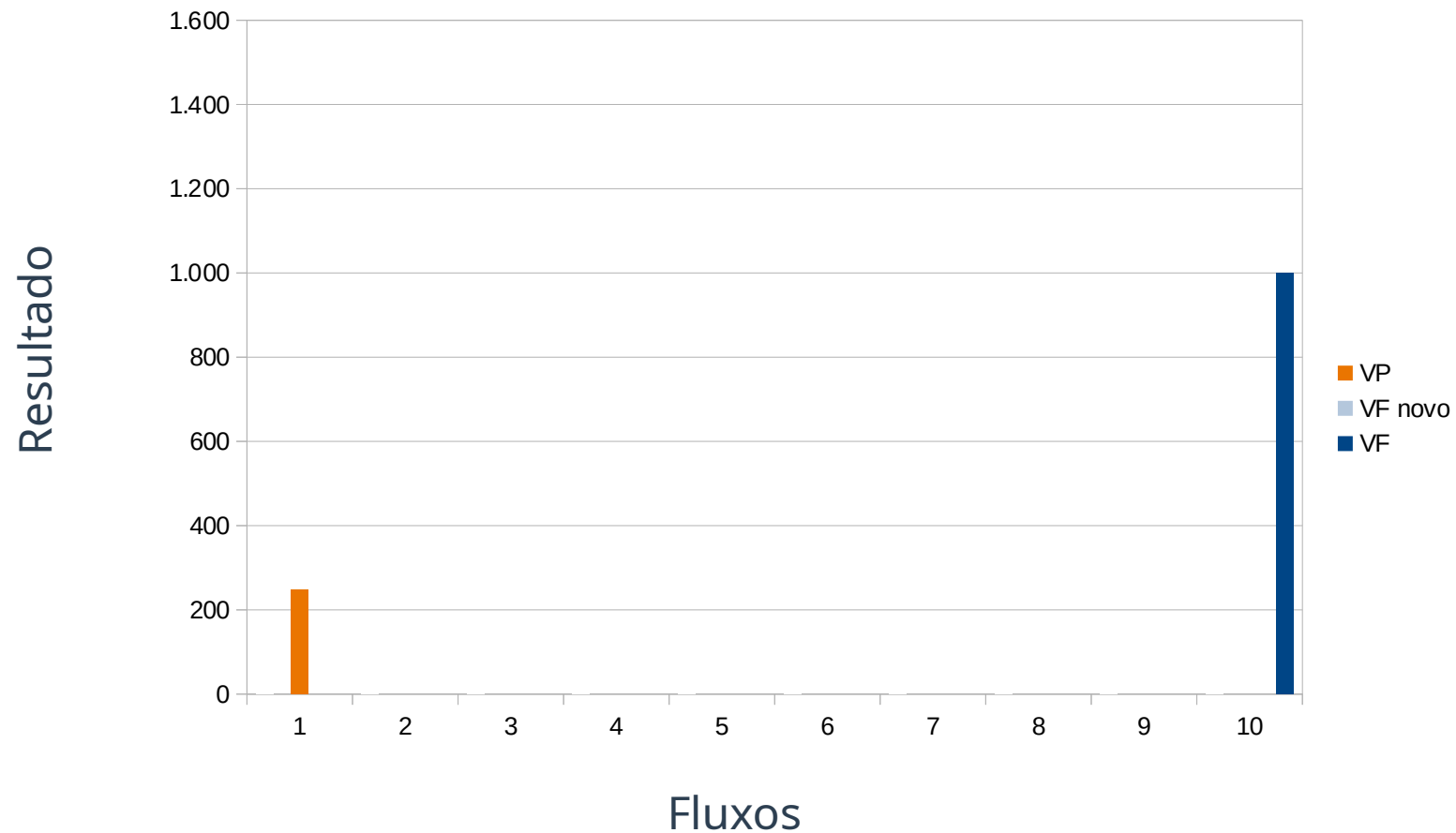


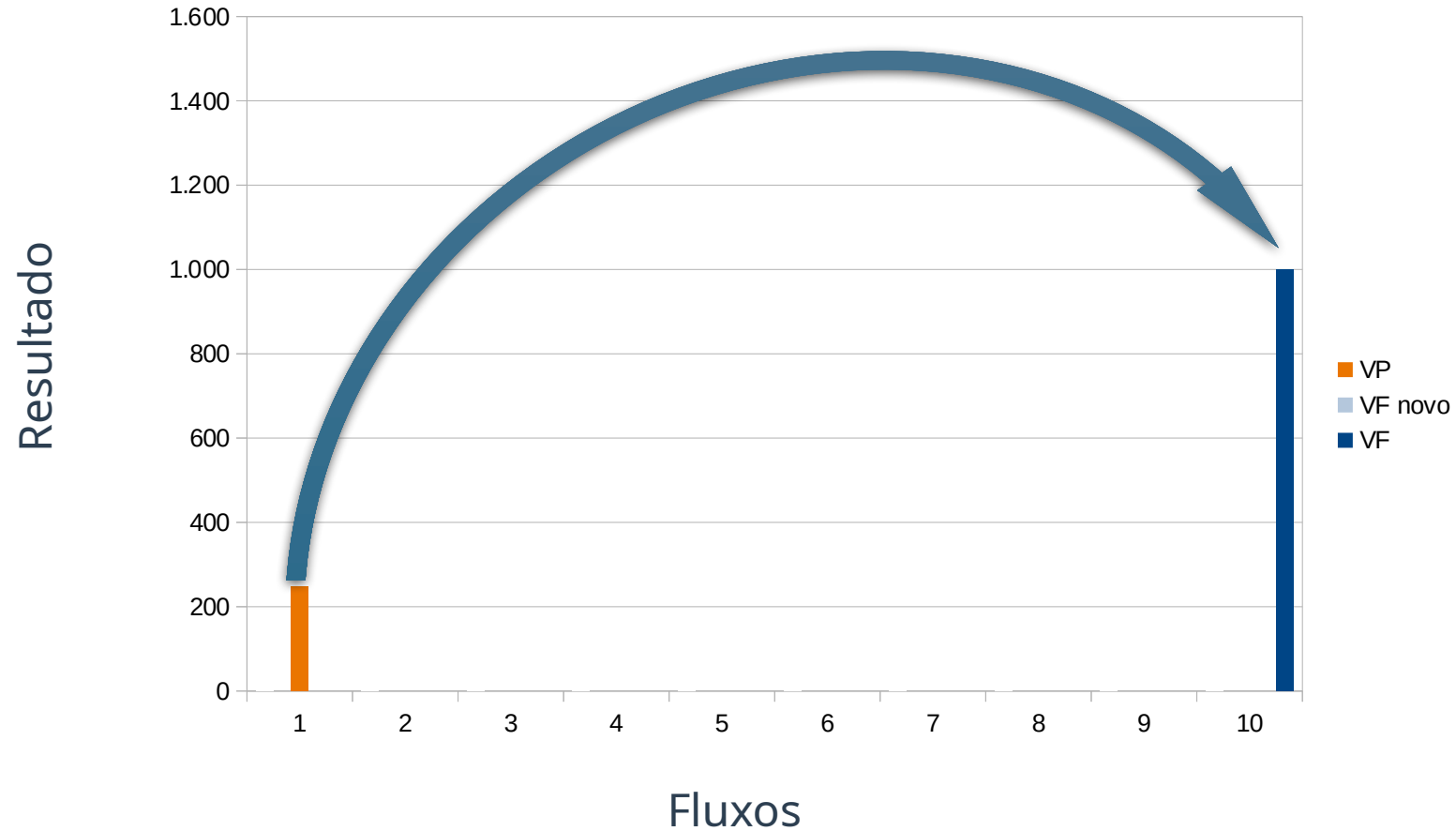
Pergunta chave:
O que é o longo prazo?

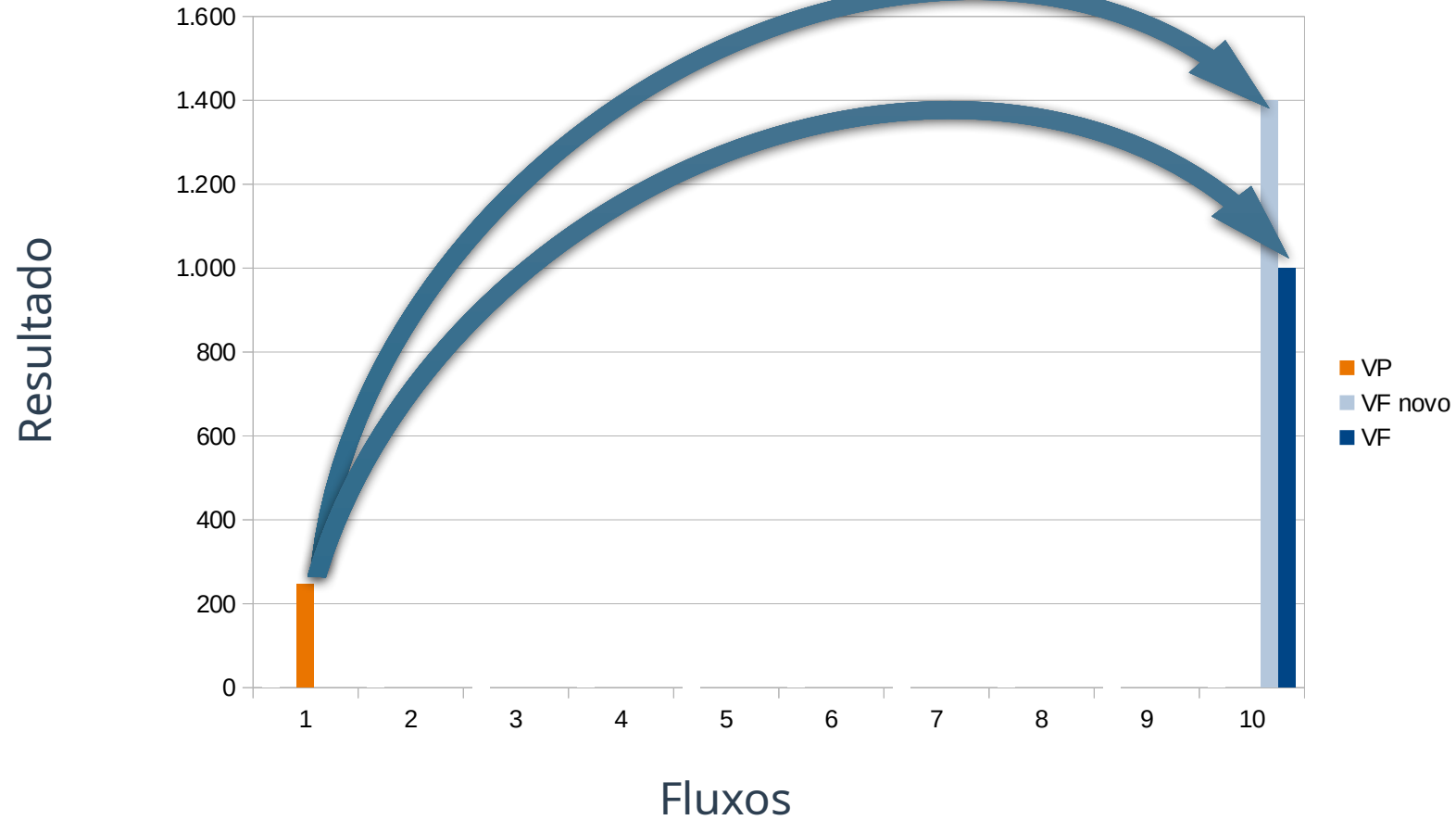


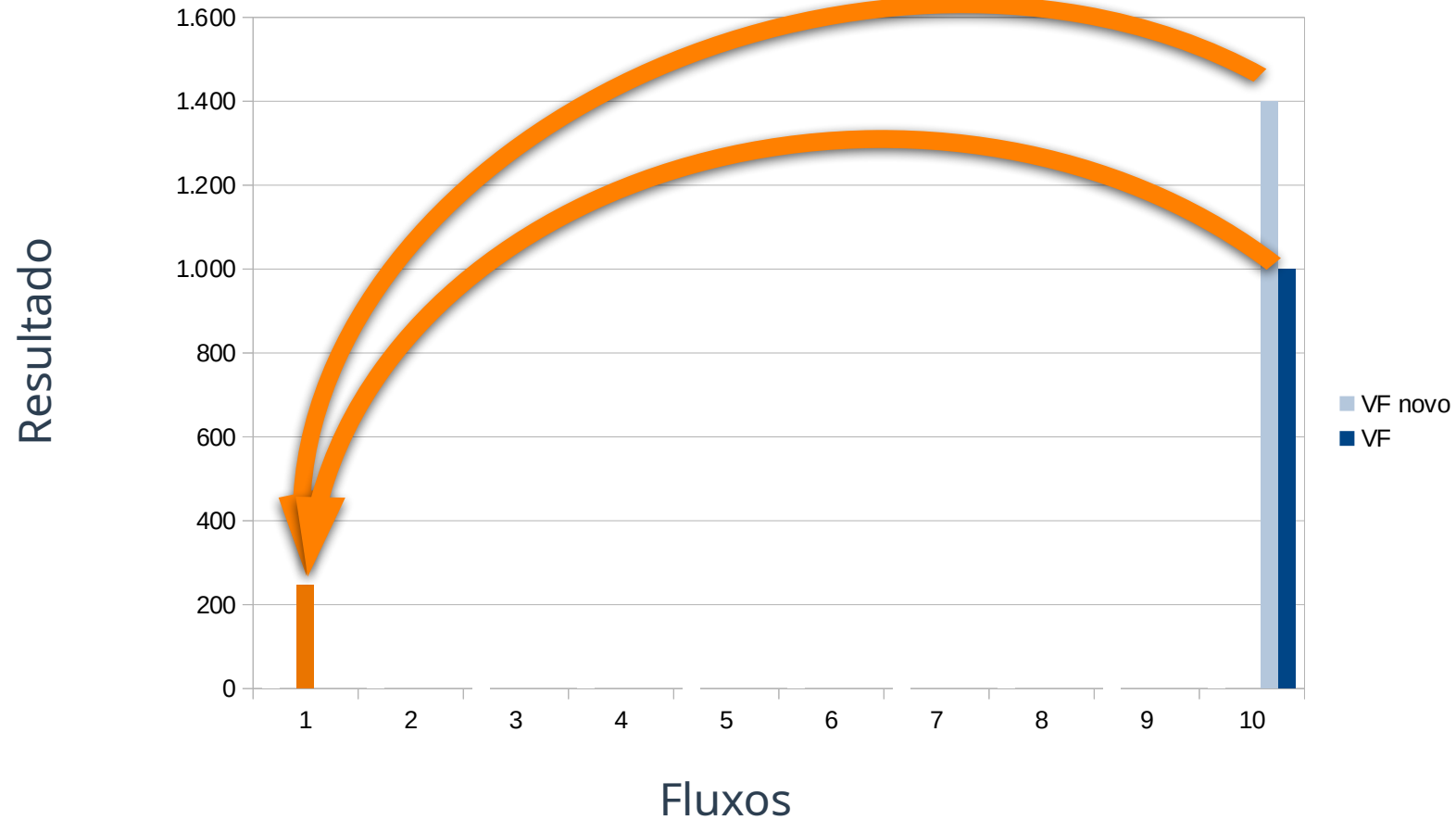
1) Continuidade Operacional:

é o princípio ou premissa de que uma empresa continuará em operação por um futuro previsível.





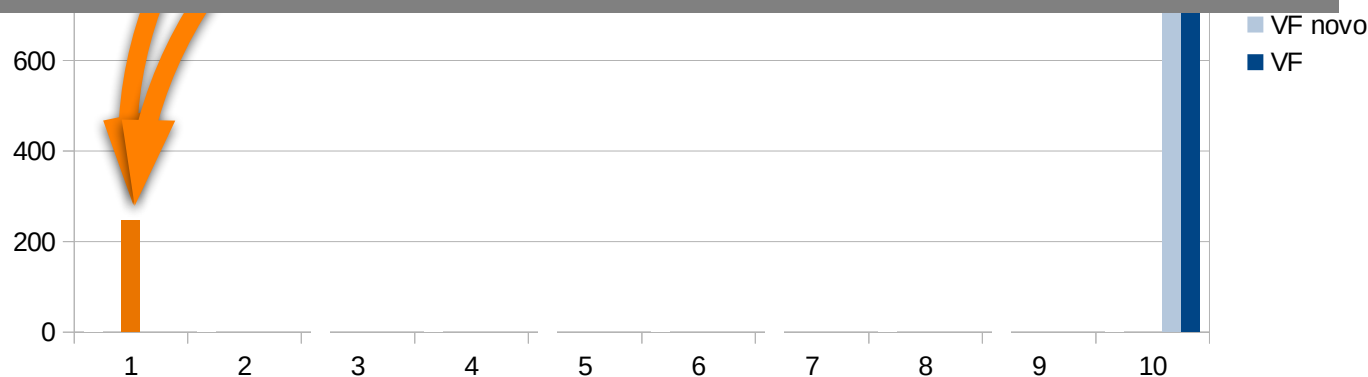




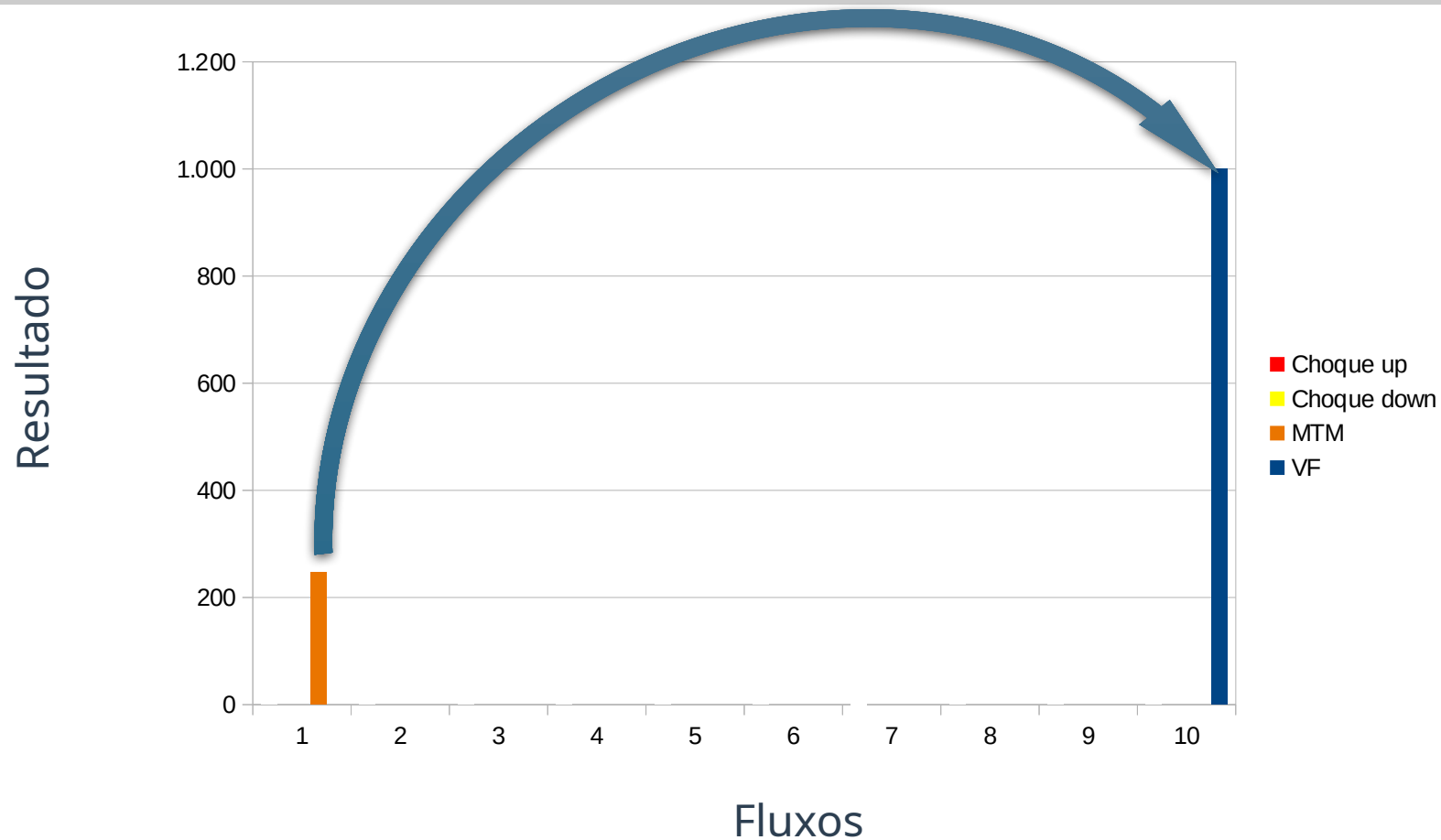
Resultado

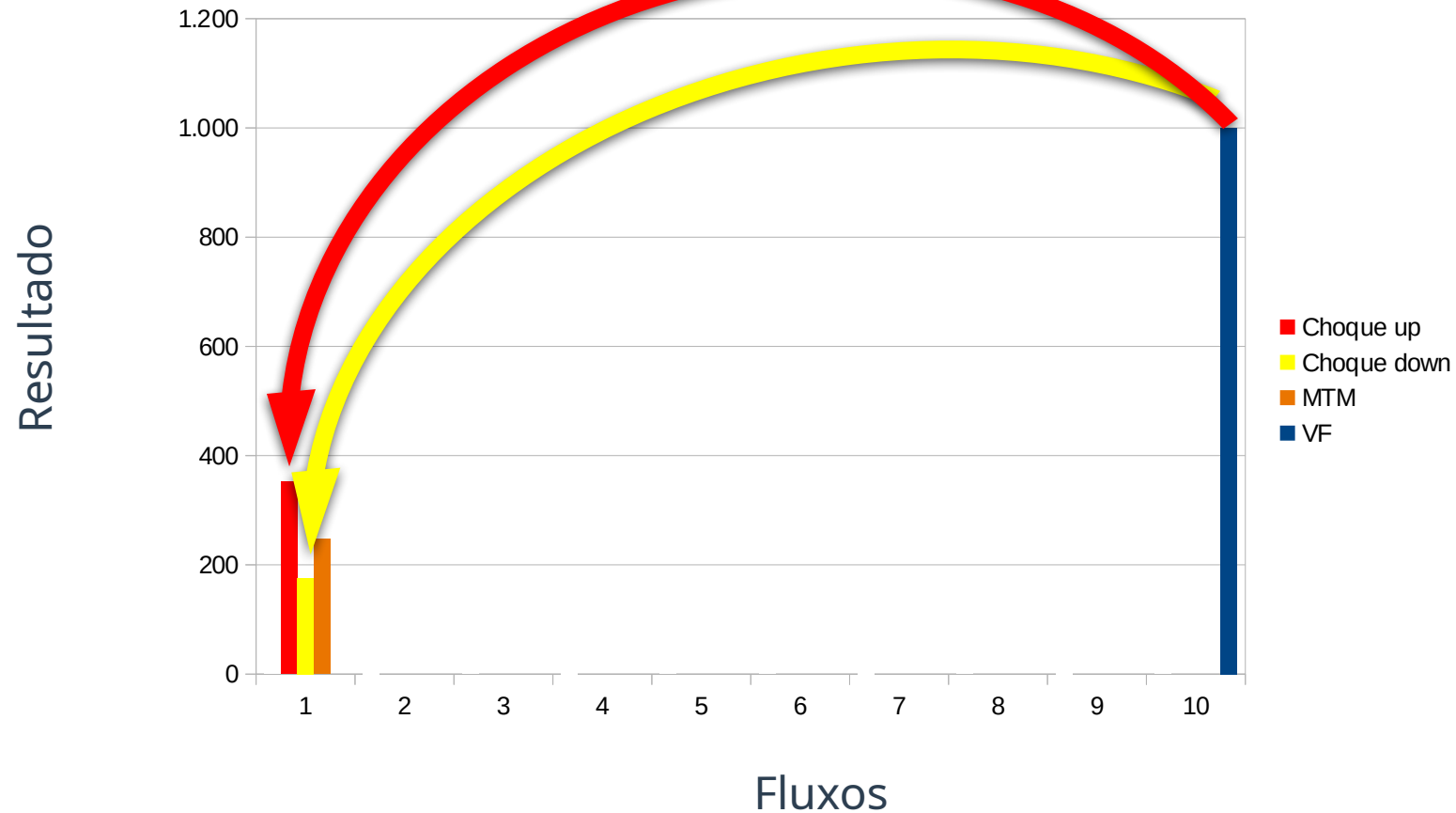


$$\Delta NII_{i,f}^{mtm} = EVE_{0,f}^{mtm} e^{R_{0,m}T} - EVE_{i,f}^{mtm} e^{R_{i,m}T} + KAO_{i,f}^{mtm} e^{R_{i,m}T}$$

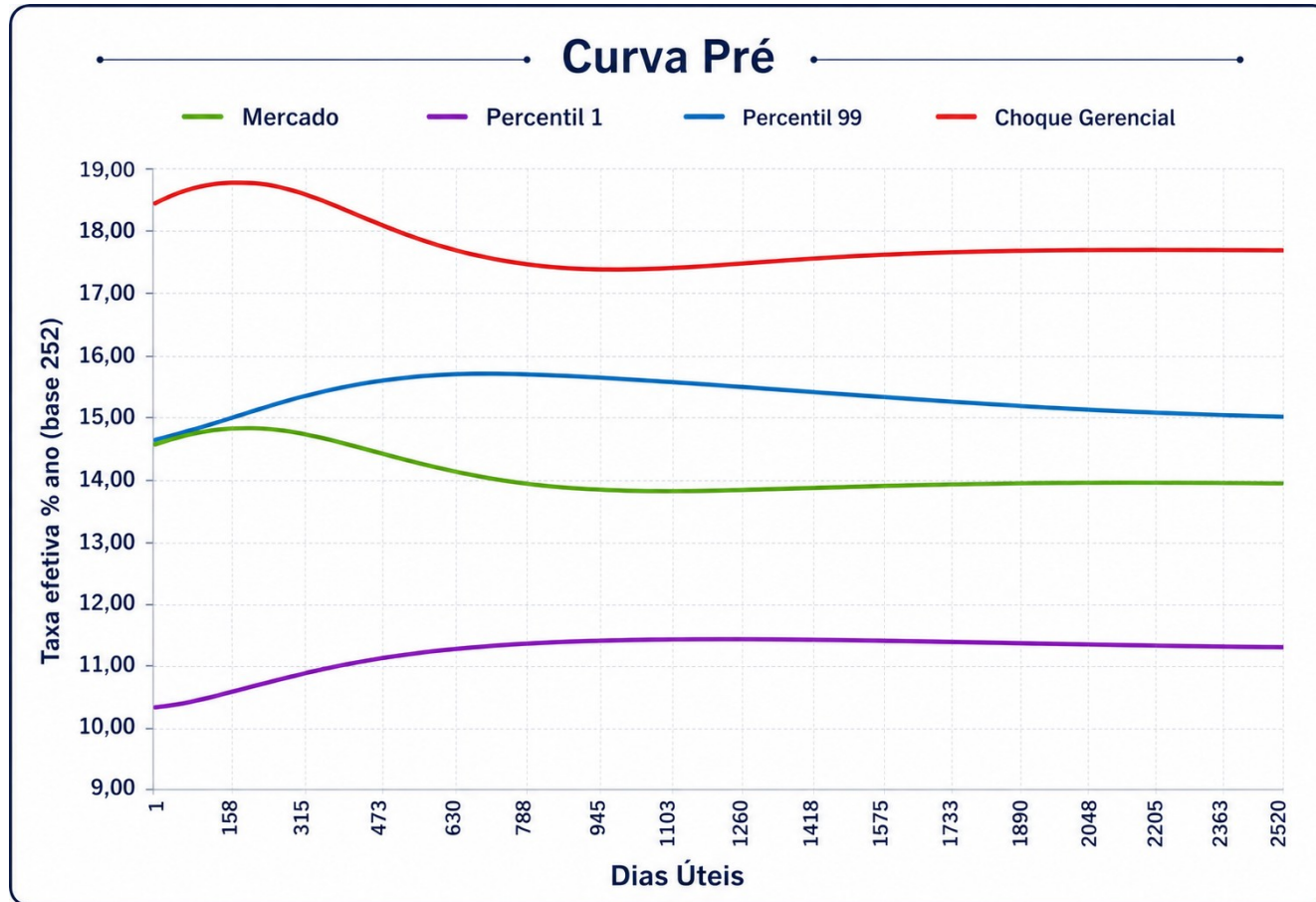


Fluxos

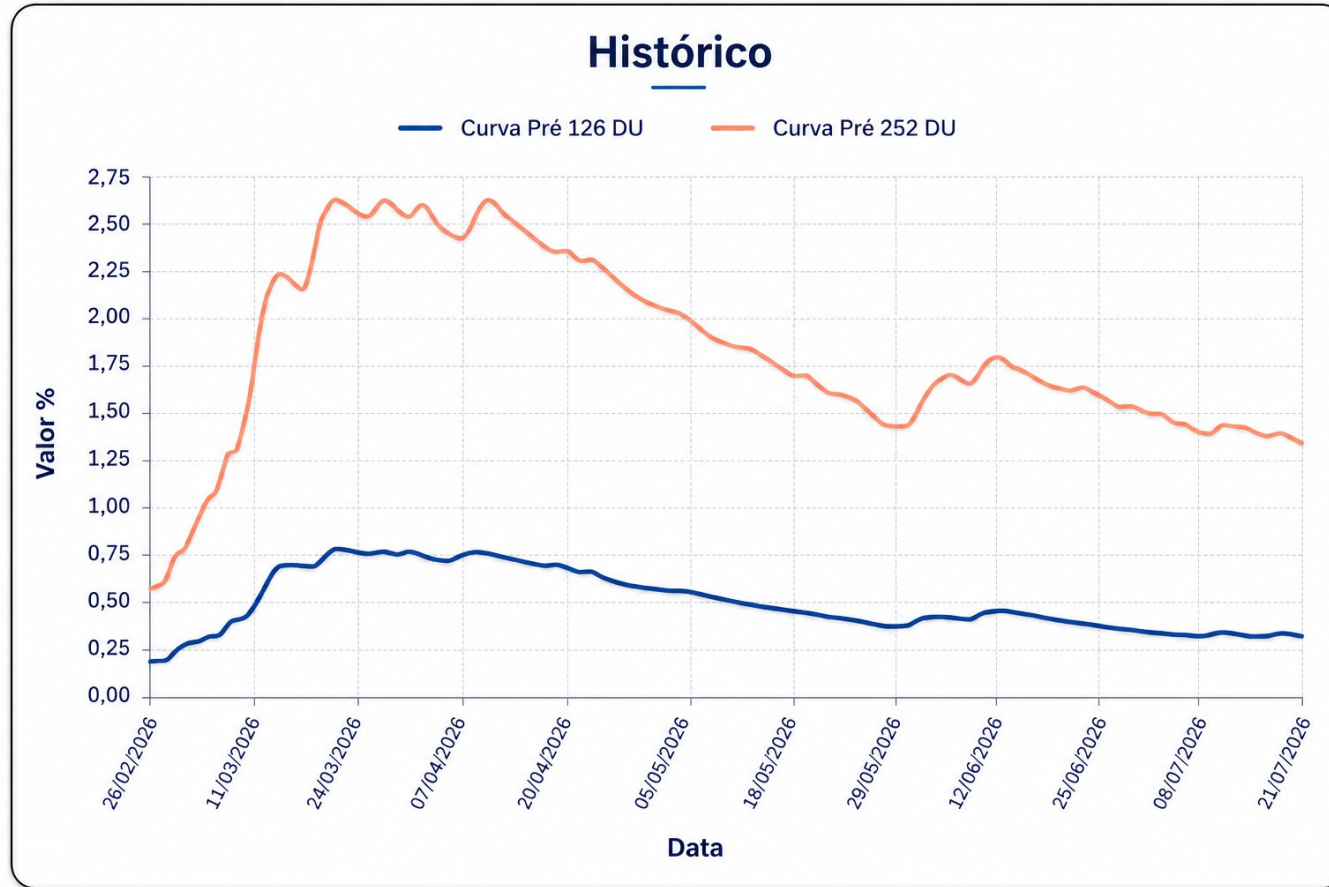




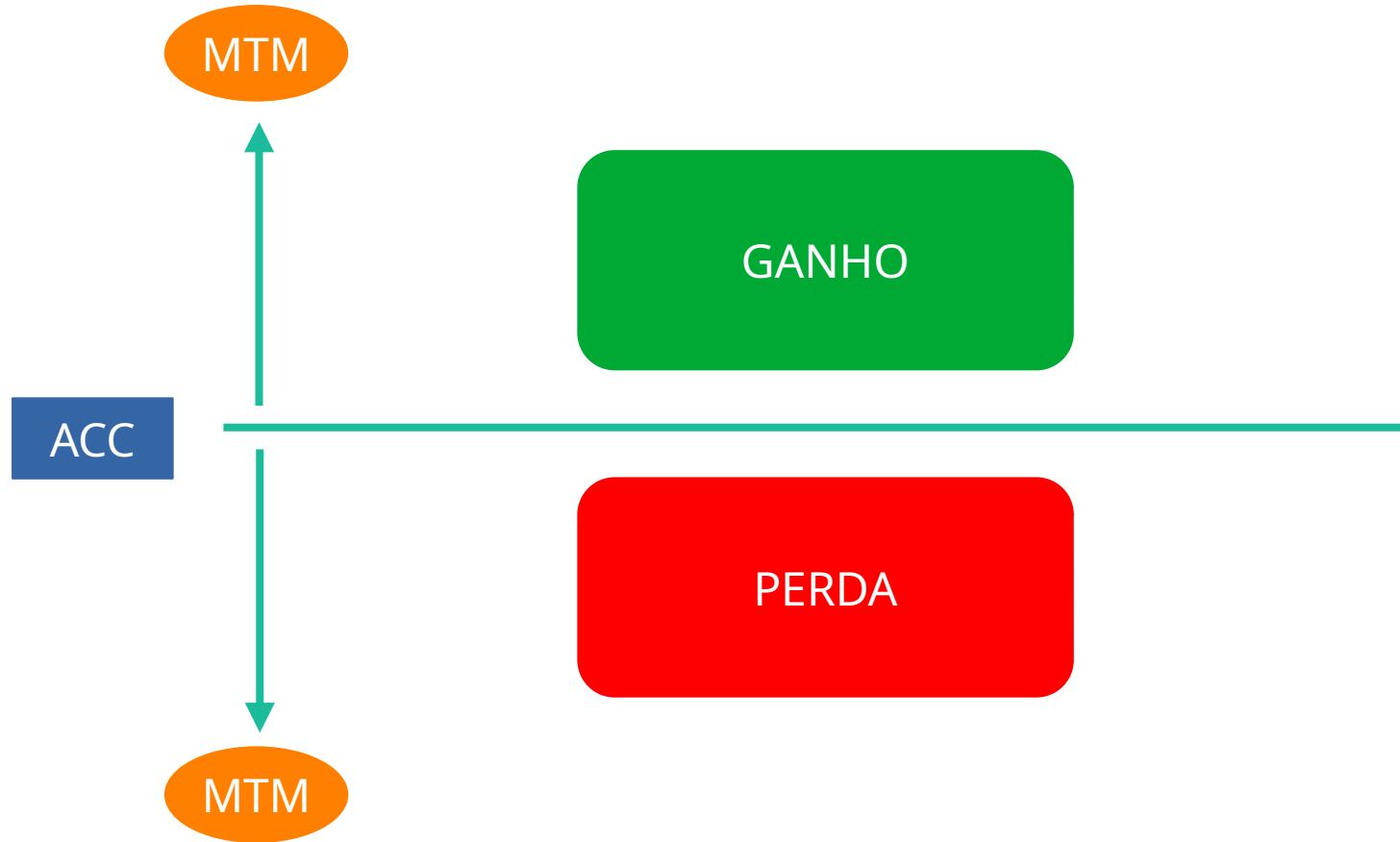
Choques 400 vs Auto Stress

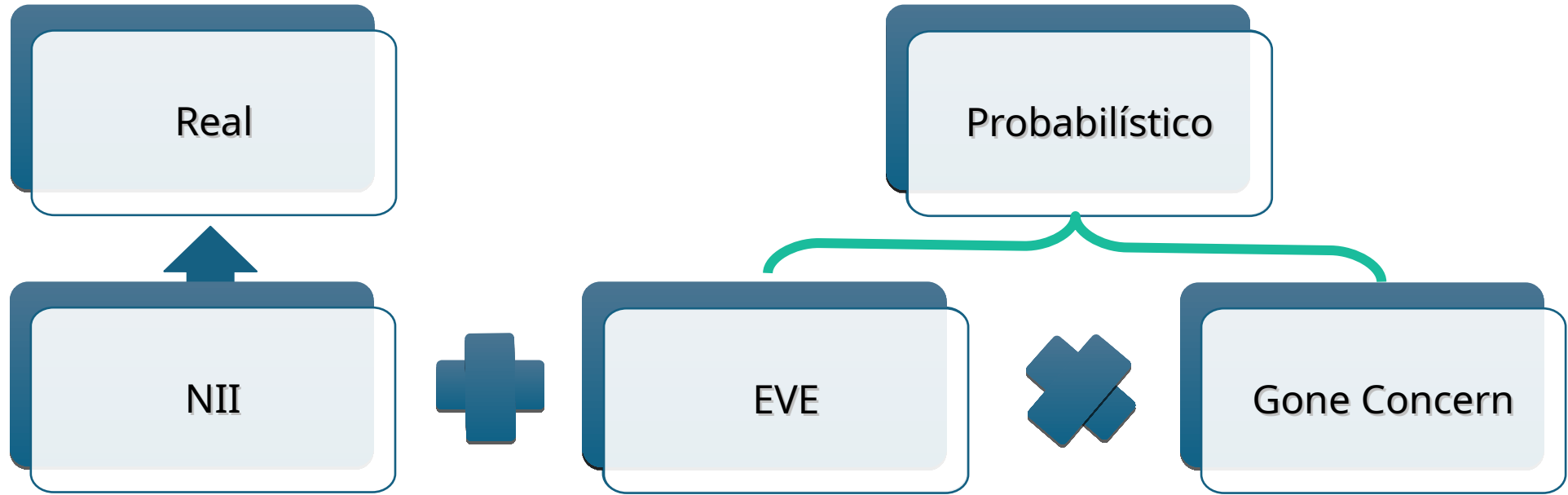


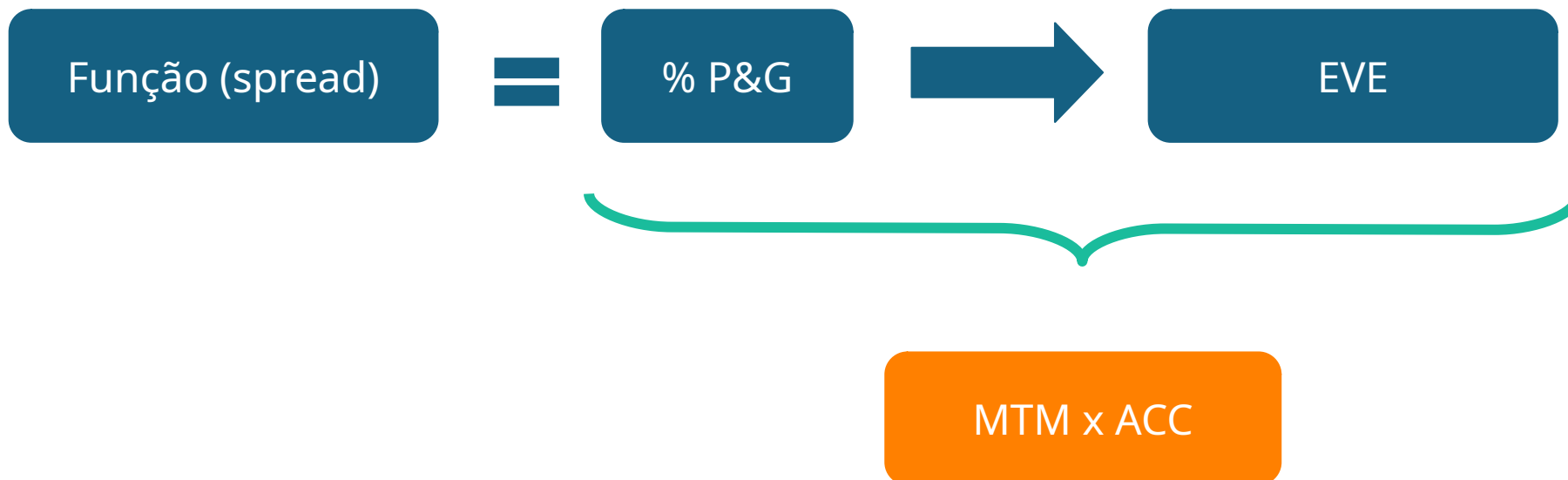
Choques 400 vs auto stress

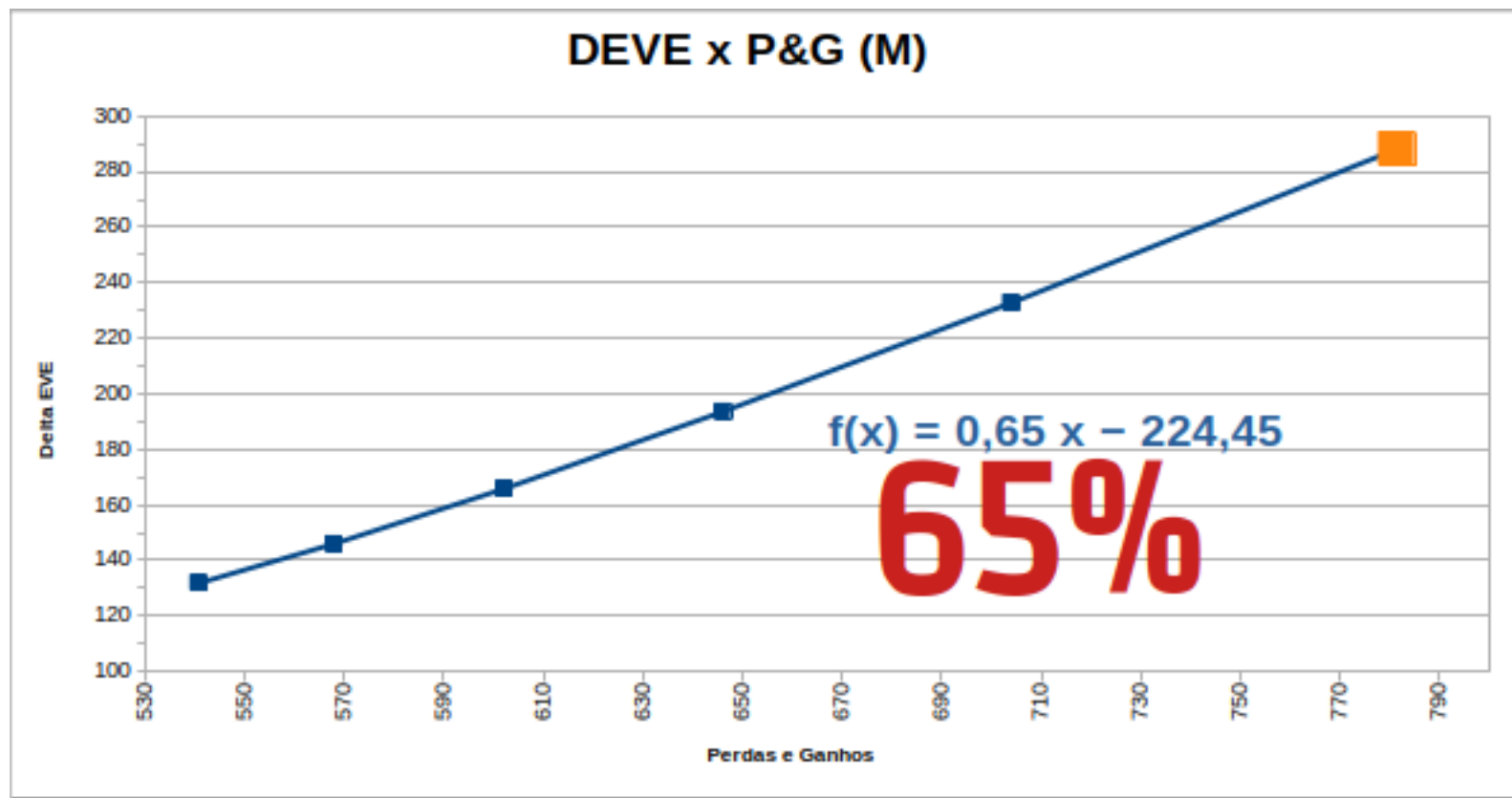


Perdas e Ganhos









$$\underbrace{R_{ban}}_{\substack{\text{Retorno Bancário} \\ \text{Icon: Bank Building}}} = \underbrace{\Delta NII}_{\substack{\text{Net Interest Income} \\ \text{Icon: Bar Chart}}} + \underbrace{f(\text{Perdas e Ganhos}, \Delta EVE)}_{\substack{\text{Função que agrega} \\ \text{Perdas e Ganhos e a variação} \\ \text{do Economic Value of Equity} \\ \text{Icon: f}}}} * \underbrace{Gone\ Concern}_{\substack{\text{Fator de avaliação} \\ \text{em continuidade} \\ \text{Icon: Shield with Check}}}}$$

$R_{ban} =$
Retorno Bancário

$\Delta NII =$
Net Interest Income

Perdas e Ganhos =
P&L

$\Delta EVE =$
variação do
Economic Value
of Equity

Gone Concern =
fator que traduz
o valor em hipótese
de continuidade
do negócio

1) Gerencial : Estratégias Euromoney.

2) NII: NII aderente exceto pós diferente de 100%

3) EVE: Não usar margens para ter a referência de perdas e ganhos, gone concern

4) MMIRBB: Modelo interno para alocar capital.

4º Workshop Duxus de Risco

Notas de Risco.

Obrigado!



Fábio Henrique

