

# ECONOMIC REPORT

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Year 10 | Volume nº 96 | 2022 Q4

Graphs and analysis contained in this report are partially or fully based on non—proprietary data, including commercial providers and other public authorities.

CVM does utilize this data in good faith and does not hold itself responsible for its accuracy and completeness.

The content of this report is merely analytic and neither does constitute investment recommendations nor policy guidance.

Data as good as of 31/12/2022.

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The background is a dark teal color with faint, semi-transparent charts and data points. There are several bar charts with numerical values like 20%, 110, 90, 87, 88, and 91. There are also some percentage values like 19% and some geometric shapes like diamonds and squares.

# MARKET SCENARIO

# 1. Market scenario - Highlights

- In 2022, a grand total of R\$574.1 billion in securities were issued (3.1.1), relating to 2,297 offerings, second highest money value on our time series, lagging only 2021, an atypical year due to the anticipation of some offerings, provoked by changes in CVM regulatory charges. Despite that, crowdfunding (CVM resolution 588) remained a highlight, with a 61% increase in the total value issued when compared to 2021.
- Debt markets (debentures, commercial paper, MBS/Agro ABS) remained again strong. Total value issued summed R\$ 409.5 bi, an increase of 21.6% year on year. Such amount was equivalent to 71% of all 2022 offerings.
- The registered set of participants (2.1) increased by 12% when compared to the end of 2021, encompassing a total of 80.404 participants. Within the subset with a count higher than 100 participants, one is able to single out the growth rates of the subgroup comprised by consultants, brokers and analysts. This trio accounted for 66% of the total increase in registered participants.
- The estimated total value of the regulated market (2.2.1) was R\$27.06 tri, about 18% lower than that observed in the previous year (R\$ 33.14 tri). Such difference can be specially explained by the derivatives markets, those always more susceptible to large changes in value (5.1). Excluding this category, our statistic would have increased by 3.5%, with a highlight for the growth rate of commercial paper, security with an outstanding stock 75% higher than 2021.
- The daily average financial turnover in the secondary market for equities (round lot) and REITs ended below the previous year, whereas the corporate bond markets remained higher (4.1.1, 4.1.2 and 4.1.3). Finally, the number of derivatives contracts settled on exchanges (4.2.2) ended lower, due to the decrease of Ibovespa and USD futures contracts.

## 2. Regulated markets

\* Estimates. Securitization companies had their records segregated from other companies in 2022. There are entities holding more than one register (double counting).

2.1. Number of participants*	2017	2018	2019	2020	2021	2022
Registered Non-Resident Investors	19.416	19.293	18.244	18.705	19.220	19.282
Registered Investment Funds	16.182	17.718	19.427	22.295	26.445	28.894
Registered Asset Managers	3.382	3.452	3.560	3.786	4.185	4.557
Legal persons	2.479	2.512	2.603	2.774	3.036	3.294
Firms	903	940	957	1.012	1.149	1.263
Registered Research Analysts	606	662	698	923	1.269	1.412
Legal persons	606	615	629	840	1.161	1.283
Firms	0	47	69	83	108	129
Registered Investment Consultants	673	659	694	790	1.018	1.329
Legal persons	479	498	547	632	815	1.076
Firms	194	161	147	158	203	253
Registered Brokerage Firms (trading)	74	74	74	69	70	63
Registered Brokerage Firms (distribution)	94	101	100	102	106	101
Registered Brokers (sum)	6.652	7.778	10.798	13.881	18.141	23.294
Legal persons	5.492	6.619	9.608	12.275	16.969	22.033
Firms	1.160	1.159	1.190	1.156	1.172	1.261
Registered Custodians	145	139	146	146	156	155
Registered Bookkeepers	53	59	61	63	72	74
Registered Organized Market Administrators	1	1	1	3	3	4
Registered CSDs	1	1	1	1	2	2
Registered Crowdfunding Platforms	N/A	14	26	32	54	57
Registered public, foreign and subsidized companies (active)	672	666	656	675	765	745
Securitization companies	-	-	-	-	-	79
Registered Independent Auditors	391	375	528	354	346	349
Registered Rating Agencies	7	7	7	6	6	7
<b>TOTAL</b>	<b>48.349</b>	<b>50.999</b>	<b>55.021</b>	<b>61.831</b>	<b>71.858</b>	<b>80.404</b>

Source: CVM, APIMEC

## 2. Regulated markets

### 2.2.1. Total regulated markets (US\$ tri)\*

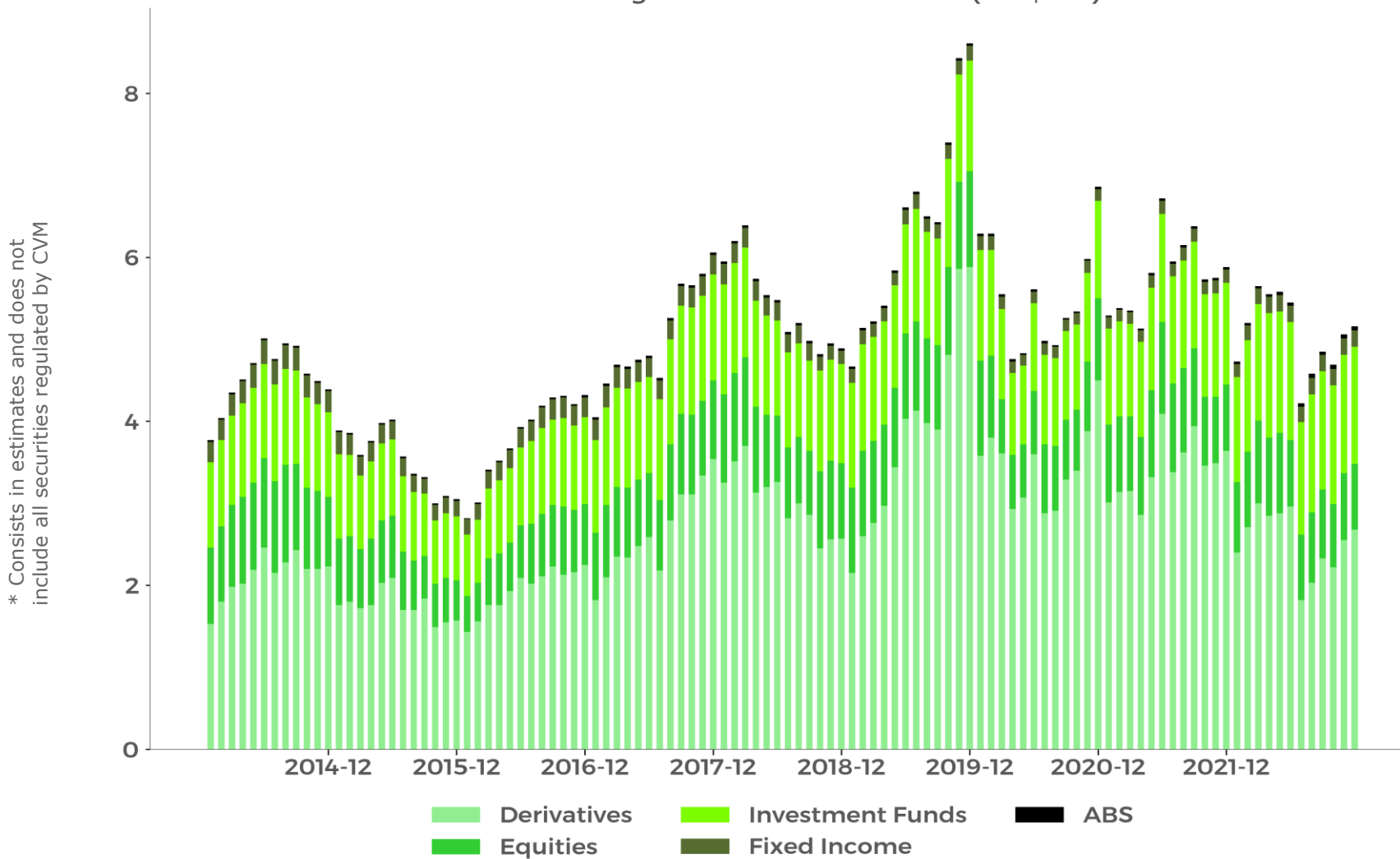
CATEGORY	ASSET	2017	2018	2019	2020	2021	2022
Fixed Income	Corporate Bonds	0.23	0.15	0.17	0.13	0.15	0.19
	Commercial Paper	0.01	0.01	0.01	0.01	0.01	0.01
Securitization	MBS	0.02	0.02	0.02	0.02	0.02	0.03
	Agrobusiness	0.01	0.01	0.01	0.01	0.01	0.02
Variable Income	Equities – Market Cap	0.96	0.92	1.17	1.00	0.81	0.80
Derivatives	Notional outstanding	3.54	2.56	5.88	4.50	3.63	2.67
	Structured Notes	0.00	0.01	0.00	0.00	0.01	0.01
Investment Funds	Rule-555	1.15	1.08	1.18	1.03	1.04	1.18
	Structured Funds	0.14	0.13	0.17	0.16	0.20	0.25
TOTAL		6.06	4.89	8.61	6.86	5.88	5.16

\* Consists in estimates and does not include all securities regulated by CVM. For prior years it represents end of year data.

Source: CVM and Organized Market Administrators

## 2. Regulated markets

2.2.2. Regulated market value (US\$ tri)\*

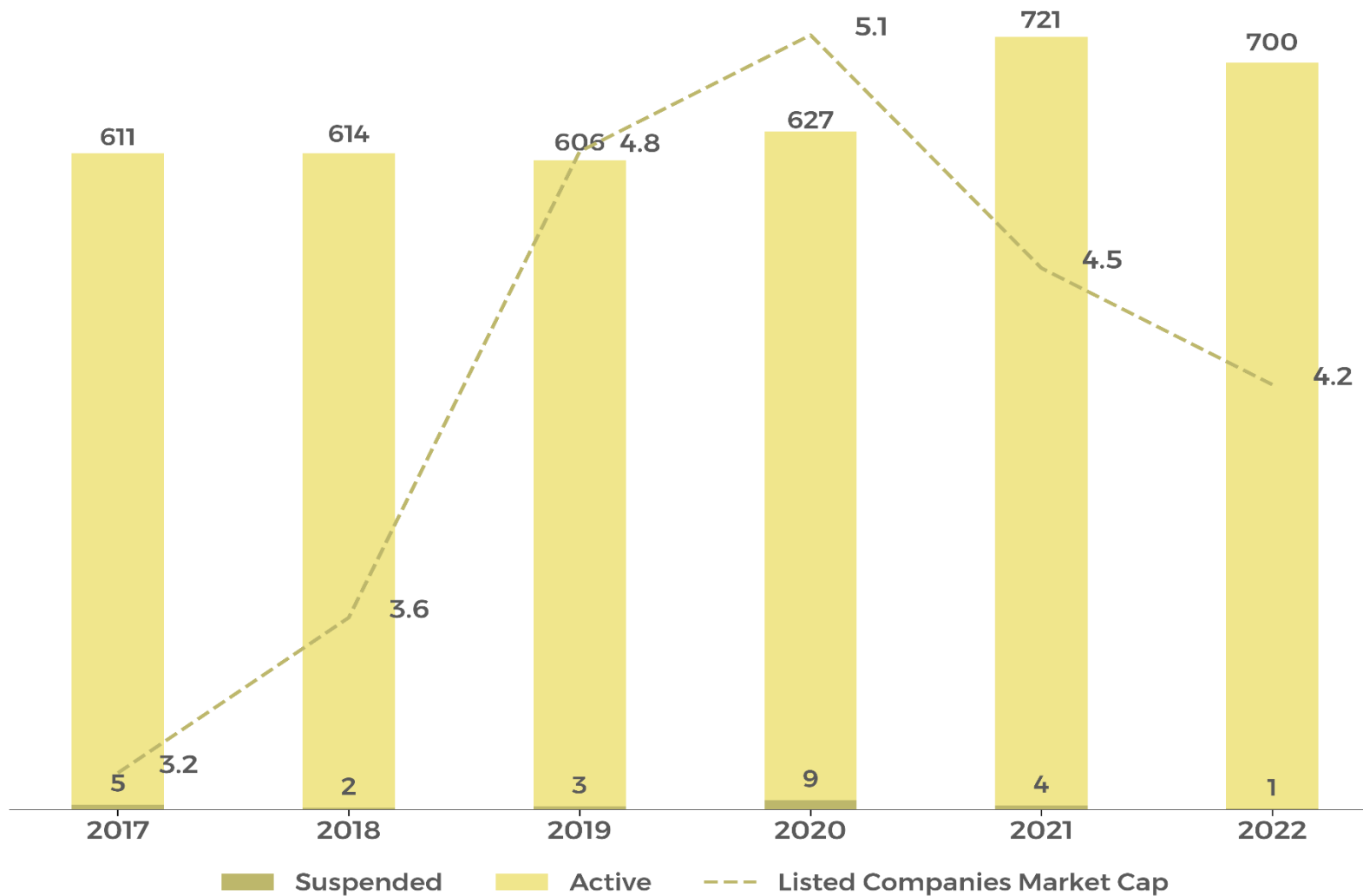


Source: CVM and Organized Market Administrators



## 2. Regulated markets

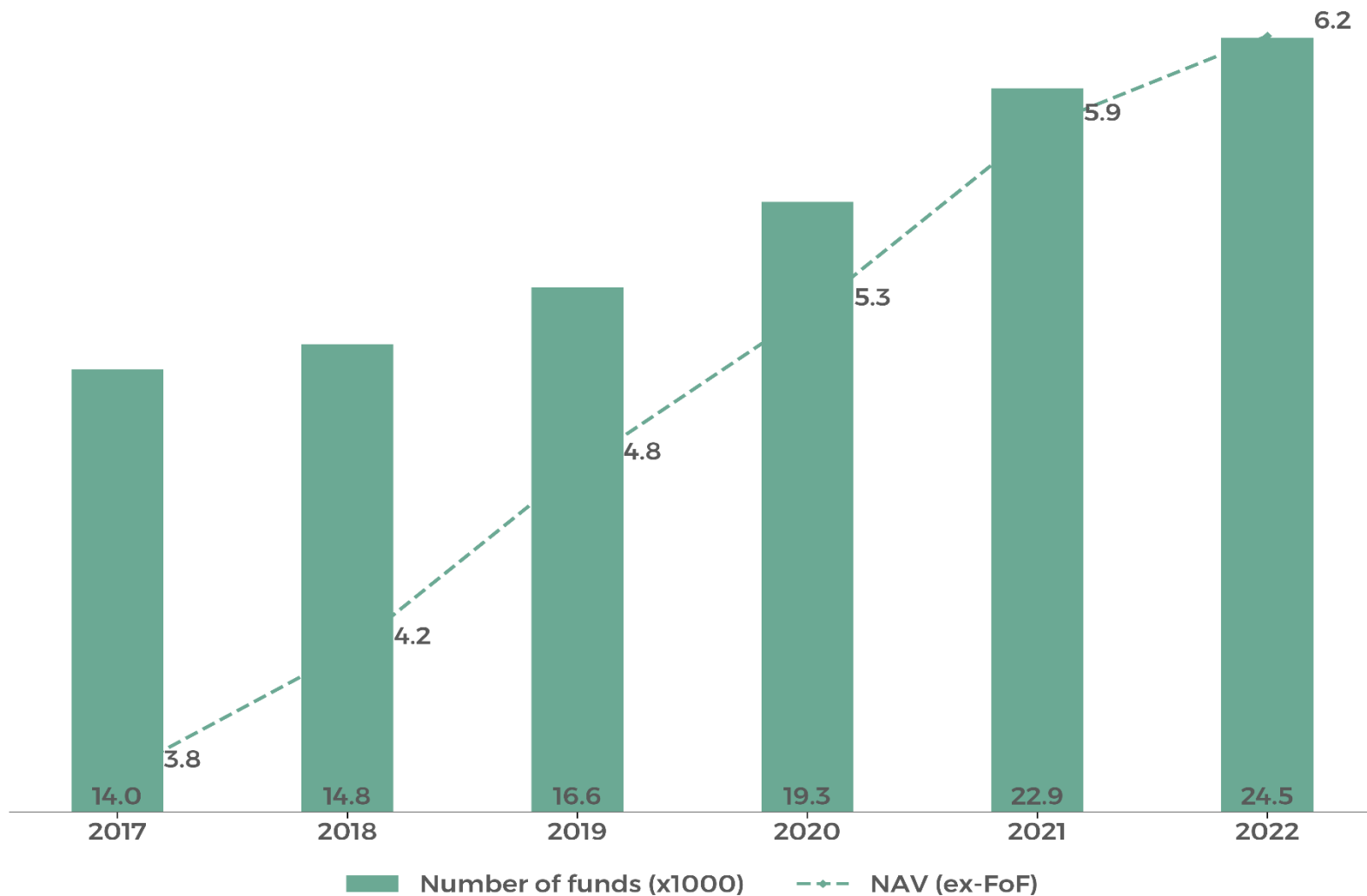
2.3. Registered companies and listed companies market cap (R\$ tri)



Source: CVM, B3

## 2. Regulated markets

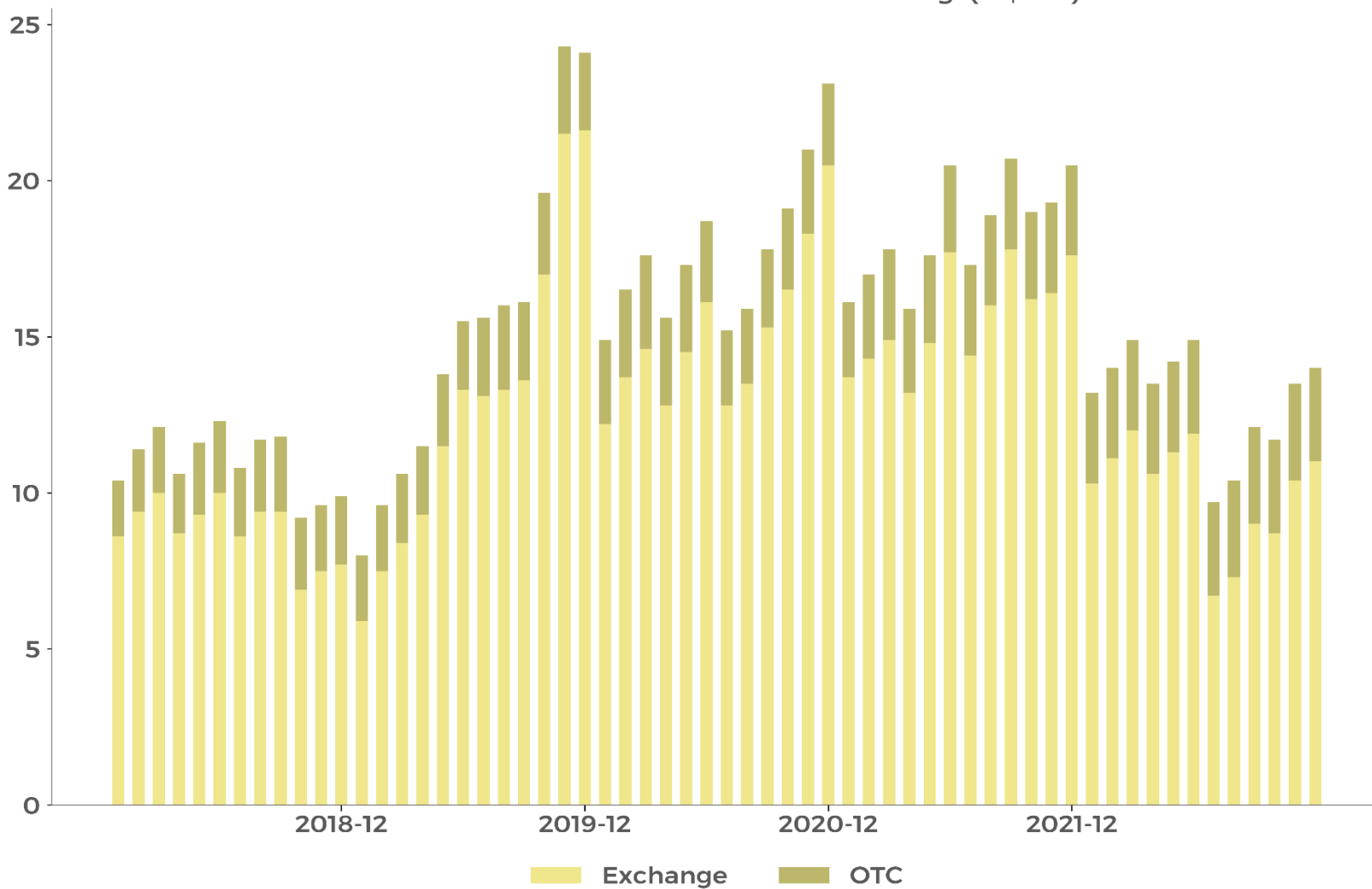
2.4. ICVM 555 Funds (ex-FoF) – quantity and NAV (R\$ tri)



Source: CVM

## 2. Regulated markets

2.5. Derivatives – notional outstanding (R\$ tri)



Source: Organized Markets Administrators

## 3. Primary markets

### 3.1. Annual totals by rule

3.1.1. Annual totals (quantity and value)*	2017		2018		2019		2020		2021		2022	
RULE	qty	R\$ bi	qty	R\$ bi	qty	R\$ bi	qty	R\$ bi	qty	R\$ bi	qty	R\$ bi
ICVM 400	91	50.2	76	33.5	125	89.5	135	120.2	165	129.3	146	107.7
ICVM 400 (exemptions)	-	-	-	-	-	-	2	5.0	1	0.1	-	-
ICVM 476	842	177.0	1.037	253.4	1.322	386.5	1.392	319.2	2.702	607.8	2.041	466.2
ICVM 588 (crowdfunding)	-	-	3	0.00	86	0.10	98	0.13	74	0.13	110	0.21
<b>TOTAL</b>	<b>933</b>	<b>227.2</b>	<b>1.116</b>	<b>286.9</b>	<b>1.533</b>	<b>476.1</b>	<b>1.627</b>	<b>444.5</b>	<b>2.942</b>	<b>737.3</b>	<b>2.297</b>	<b>574.1</b>

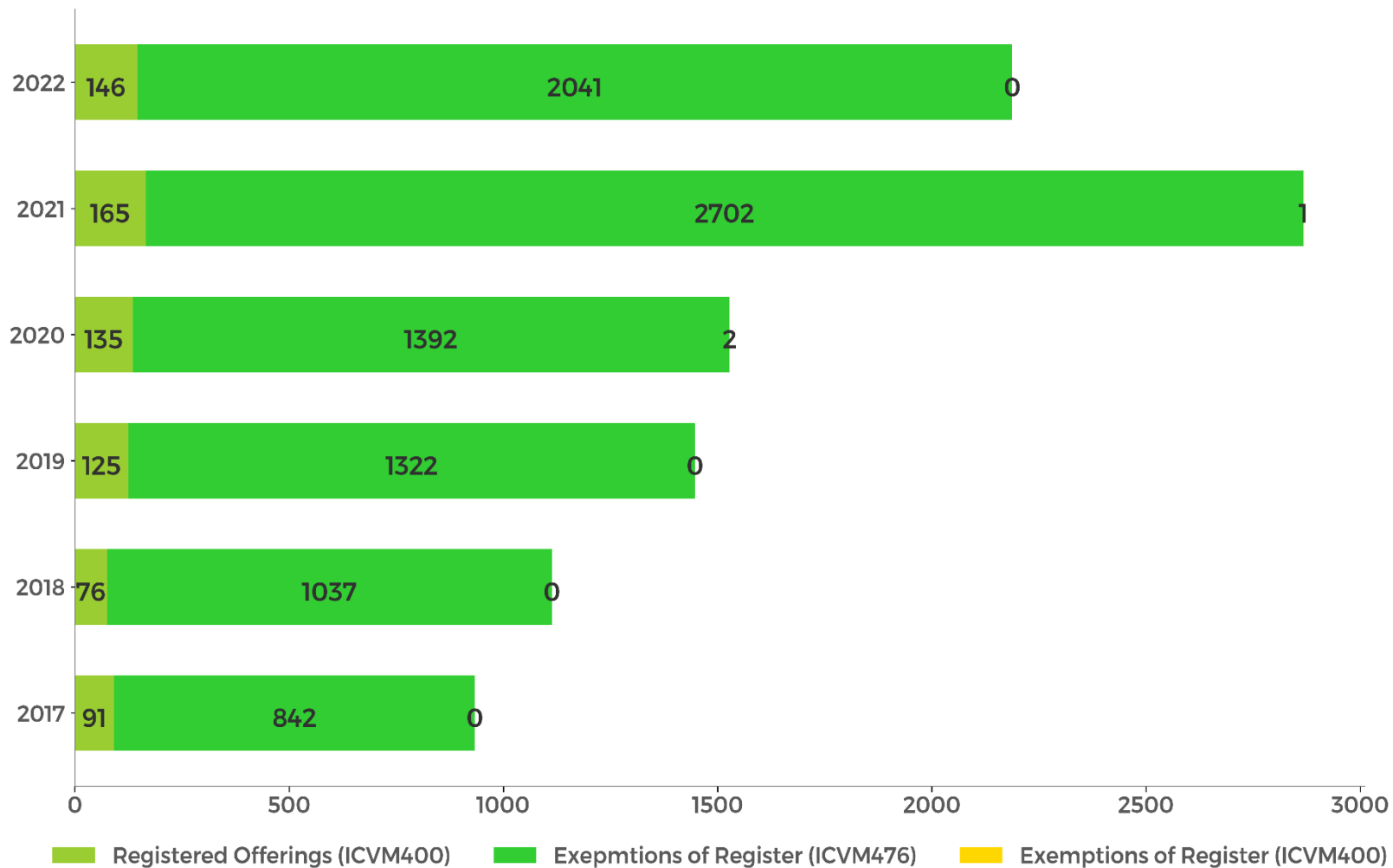
\* Consists in estimates and does not include all securities regulated by CVM. Includes stocks+DR, MBS, Agrobusiness ABS, CDOs, REITs, Private Equity, CP, bank bonds and corporate bonds (ex-leasing). ICVM 476 offers exclude ongoing efforts. ICVM 400 exclude single indivisible batch exemptions.

Source: CVM

### 3. Primary markets

#### 3.1. Annual totals by rule

3.1.2. Total YTD offerings, by rule – quantity\*

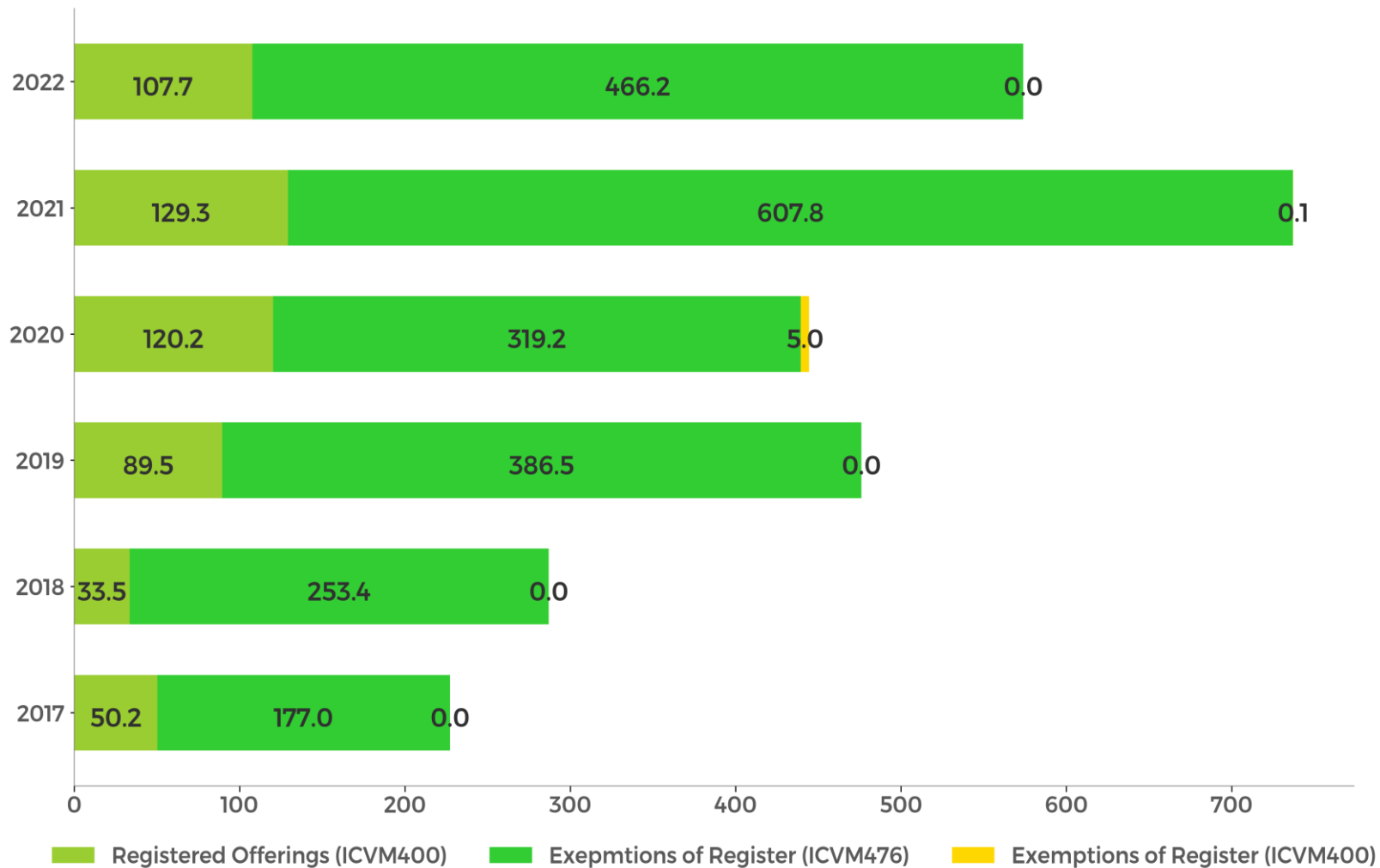


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### 3. Primary markets

#### 3.1. Annual totals by rule

3.1.3. Total YTD offerings, by rule – (values in R\$ bi)\*



\* Consists in estimates and does not include all securities regulated by CVM. Includes stocks+DR, MBS, Agrobusiness ABS, CDOs, REITs, Private Equity, CP, bank bonds and corporate bonds (ex-leasing). ICVM 476 offers exclude ongoing efforts.

## 3. Primary markets

### 3.2. Accumulated totals by rule

\* Consists in estimates and does not include all securities regulated by CVM. Includes stocks+DR, MBS, Agrobusiness ABS, CDOs, REITs, Private Equity, CP, bank bonds and corporate bonds (ex-leasing). ICVM 476 offers exclude ongoing efforts.

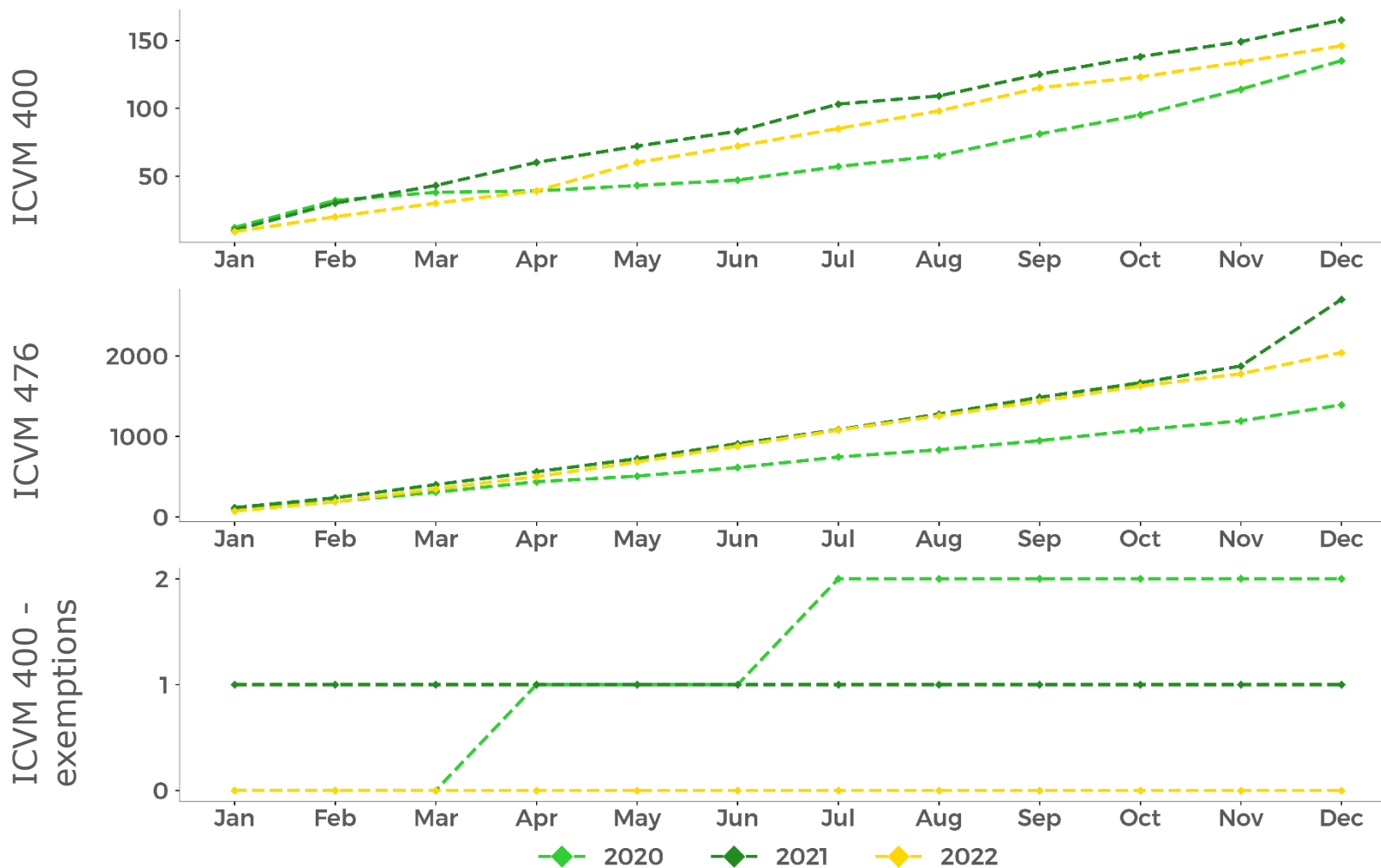
3.2.1. Accumulated totals for the current month (quantity and value)*	2017		2018		2019		2020		2021		2022	
	qty	R\$ bi	qty	R\$ bi	qty	R\$ bi	qty	R\$ bi	qty	R\$ bi	qty	R\$ bi
ICVM 400	91	50.2	76	33.5	125	89.5	135	120.2	165	129.3	146	107.7
ICVM 400 (exemptions)	-	-	-	-	-	-	2	5.0	1	0.1	-	-
ICVM 476	842	177.0	1.037	253.4	1.322	386.5	1.392	319.2	2.702	607.8	2.041	466.2
ICVM 588 (crowdfunding)	-	-	3	0.00	86	0.10	98	0.13	74	0.13	110	0.21
<b>TOTAL</b>	<b>933</b>	<b>227.2</b>	<b>1.116</b>	<b>286.9</b>	<b>1.533</b>	<b>476.1</b>	<b>1.627</b>	<b>444.5</b>	<b>2.942</b>	<b>737.3</b>	<b>2.297</b>	<b>574.1</b>

Source: CVM

### 3. Primary markets

#### 3.2. Accumulated totals by rule

3.2.2. Accumulated totals for the current month, by rule (quantity)



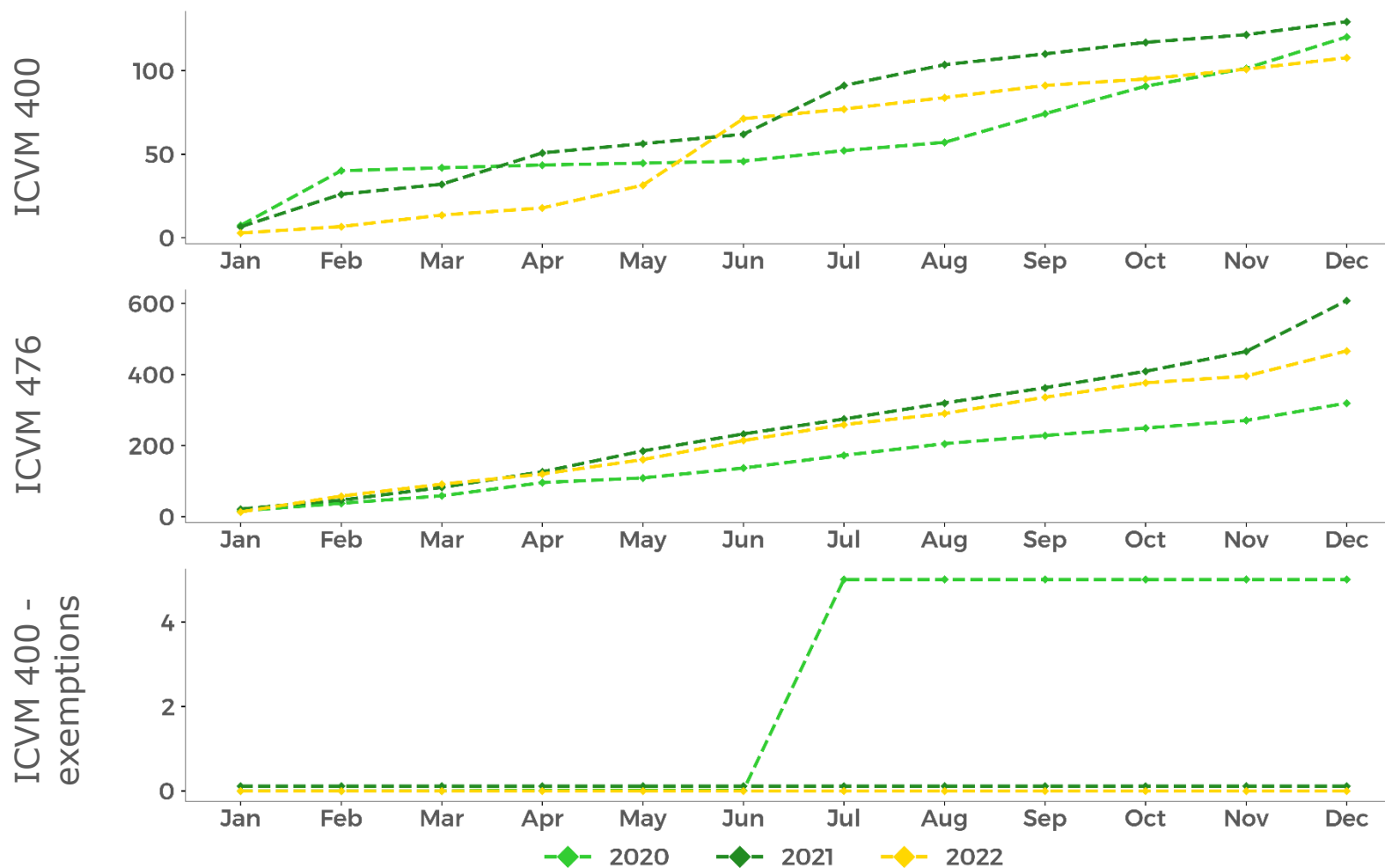
Source: CVM



### 3. Primary markets

#### 3.2. Accumulated totals by rule

3.2.3. Accumulated totals for the current month, by rule (values in R\$ bi)



Source: CVM

## 3. Primary markets

### 3.3. Annual totals by instrument

3.3.1. Annual totals (quantity and value)*	2017		2018		2019		2020		2021		2022	
INSTRUMENT	qty	R\$ bi	qty	R\$ bi	qty	R\$ bi	qty	R\$ bi	qty	R\$ bi	qty	R\$ bi
Equities	26	40.1	5	11.2	42	90.2	53	118.6	71	130.7	18	57.4
Corporate Bonds	264	88.2	351	149.2	379	185.7	276	121.2	502	251.0	475	269.6
Bank Bonds	8	3.0	14	6.0	21	10.0	2	1.0	-	-	-	-
Commercial Paper	101	27.3	84	29.0	94	36.6	71	21.9	82	27.0	144	48.4
MBS	104	7.7	101	8.2	188	17.6	230	14.3	427	33.8	412	47.8
Agribusiness ABS	67	12.4	52	6.1	69	14.3	56	13.3	125	25.0	212	43.7
CDOs	141	16.6	196	21.2	269	37.9	304	48.6	687	88.7	454	40.2
REITs	75	8.2	106	17.7	198	42.4	262	49.2	388	62.6	255	36.5
Private Equity	147	23.8	204	38.4	187	41.4	275	56.3	586	118.4	217	30.3
<b>TOTAL</b>	<b>933</b>	<b>227.3</b>	<b>1.113</b>	<b>287.0</b>	<b>1.447</b>	<b>476.1</b>	<b>1.529</b>	<b>444.4</b>	<b>2.868</b>	<b>737.2</b>	<b>2.187</b>	<b>573.9</b>

\* Consists in estimates and does not include all securities regulated by CVM. Includes stocks+DR, MBS, Agribusiness ABS, CDOs, REITs, Private Equity, CP, bank bonds and corporate bonds (ex-leasing). ICVM 476 offers exclude ongoing efforts.

Source: CVM

## 3. Primary markets

### 3.3. Annual totals by instrument

\* Consists in estimates and does not include all securities regulated by CVM. Includes stocks+DR, MBS, Agribusiness ABS, CDOs, REITs, Private Equity, CP, bank bonds and corporate bonds (ex-leasing). ICVM 476 offers exclude ongoing efforts.

3.3.2. Accumulated totals for the current month (quantity and value)*	2017		2018		2019		2020		2021		2022	
	qty	R\$ bi	qty	R\$ bi	qty	R\$ bi	qty	R\$ bi	qty	R\$ bi	qty	R\$ bi
<b>INSTRUMENT</b>												
Equities	26	40.1	5	11.2	42	90.2	53	118.6	71	130.7	18	57.4
Corporate Bonds	264	88.2	351	149.2	379	185.7	276	121.2	502	251.0	475	269.6
Bank Bonds	8	3.0	14	6.0	21	10.0	2	1.0	-	-	-	-
Commercial Paper	101	27.3	84	29.0	94	36.6	71	21.9	82	27.0	144	48.4
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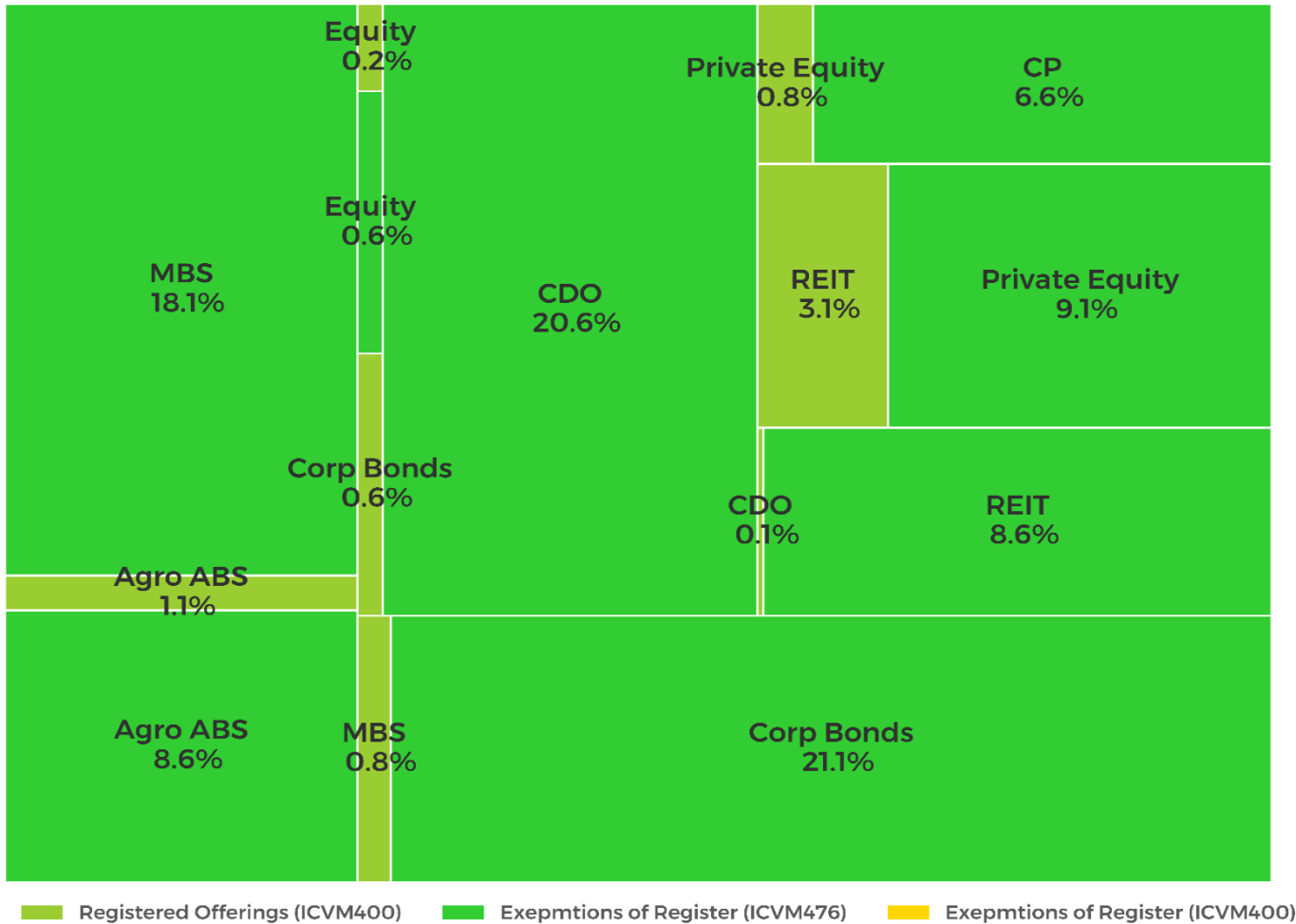
Source: CVM

### 3. Primary markets

#### 3.4. Totals by rule and instrument

3.4.1. YTD quantity of offerings (%)\*

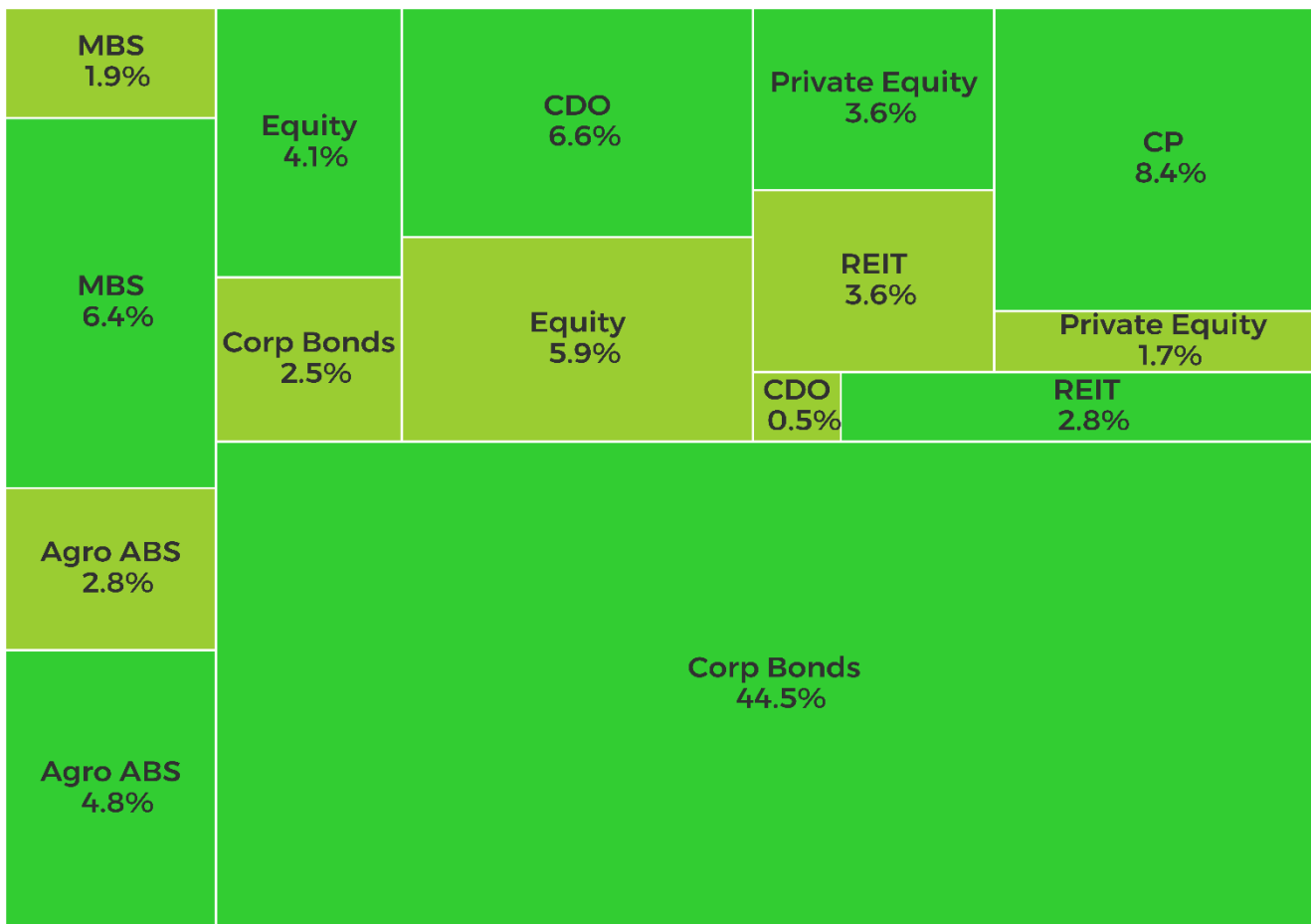
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### 3. Primary markets

#### 3.4. Totals by rule and instrument

3.4.2. YTD value of offerings (%)\*



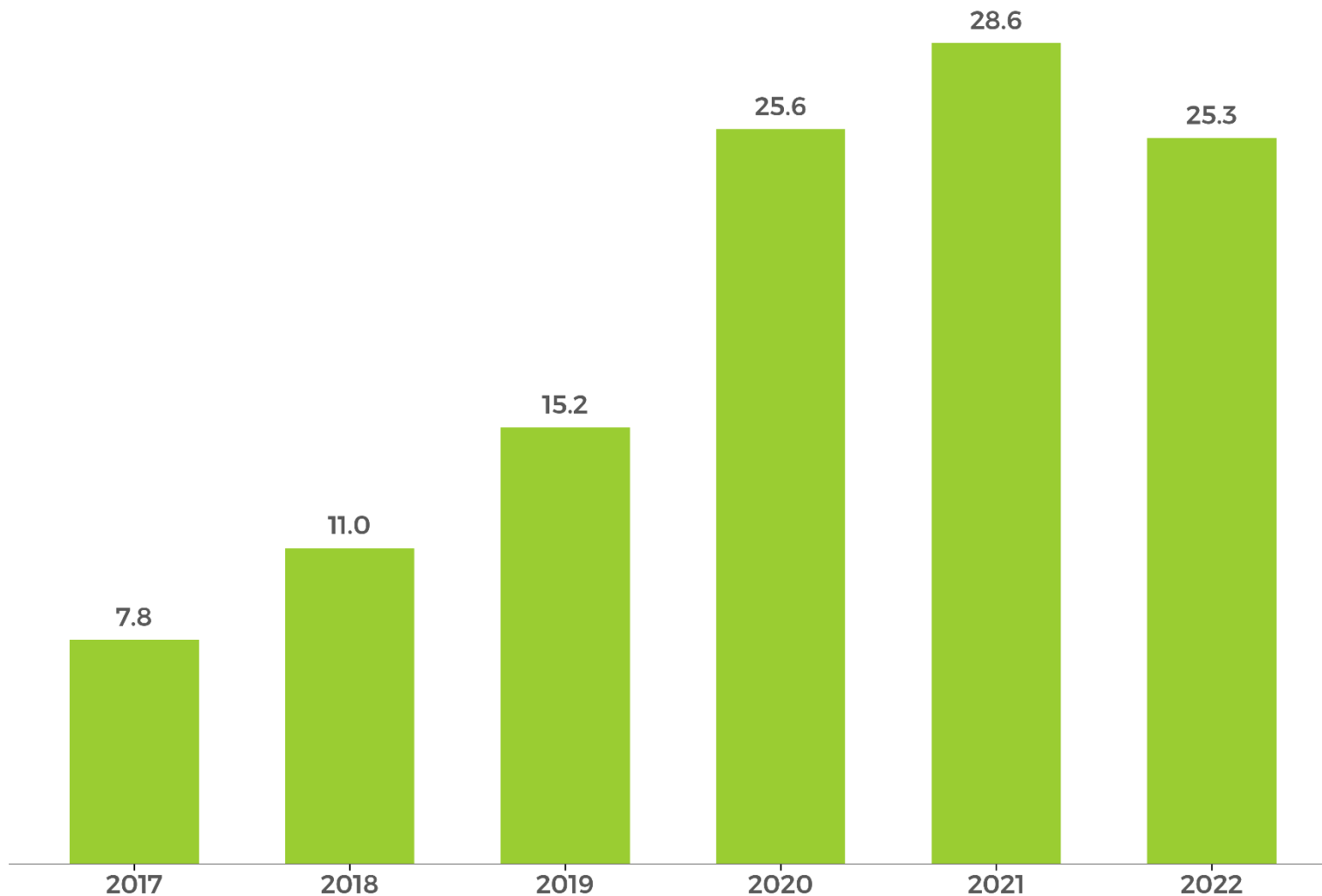
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Registered Offerings (ICVM400) Exemptions of Register (ICVM476) Exemptions of Register (ICVM400)

## 4. Secondary markets

### 4.1. Spot

#### 4.1.1. Average daily volume (R\$ bi) – equities (round lot)

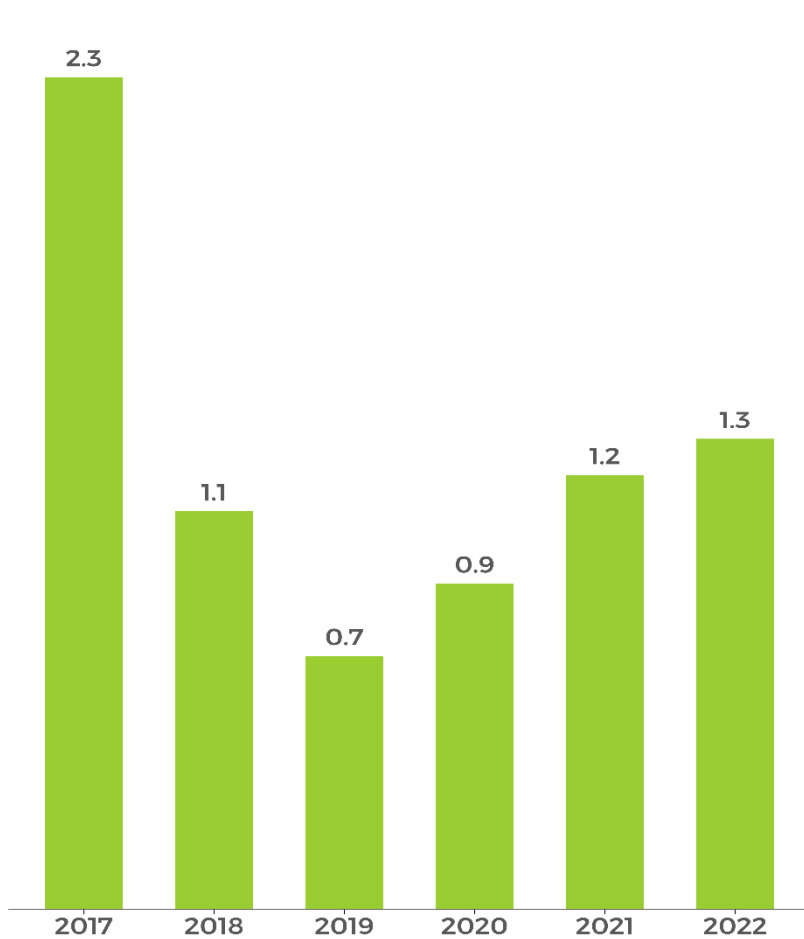


Source: B3

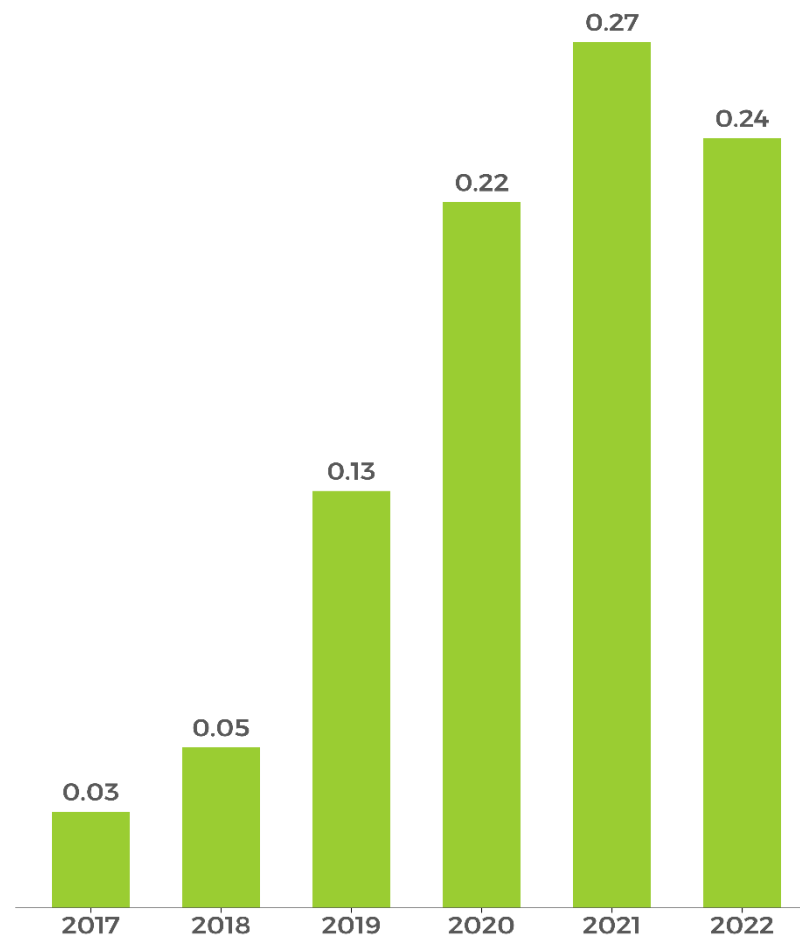
## 4. Secondary markets

### 4.1. Spot

4.1.2. Average daily volume (R\$ bi) – corporate bonds



4.1.3. Average daily volume (R\$ bi) - REITs



## 4. Secondary markets

### 4.2. Derivatives

#### 4.2.1. Derivatives – millions of contracts settled on exchanges (annual total)

INSTRUMENT	2017	2018	2019	2020	2021	2022
CDI Futures	354.4	370.8	475.9	516.7	653.9	661.7
USD Futures	74.1	91.7	94.6	80.2	70.9	68.2
Ibovespa Futures	18.9	23.8	36.1	41.9	49.1	41.9
<b>TOTAL</b>	<b>447.4</b>	<b>486.3</b>	<b>606.6</b>	<b>638.8</b>	<b>773.9</b>	<b>771.8</b>

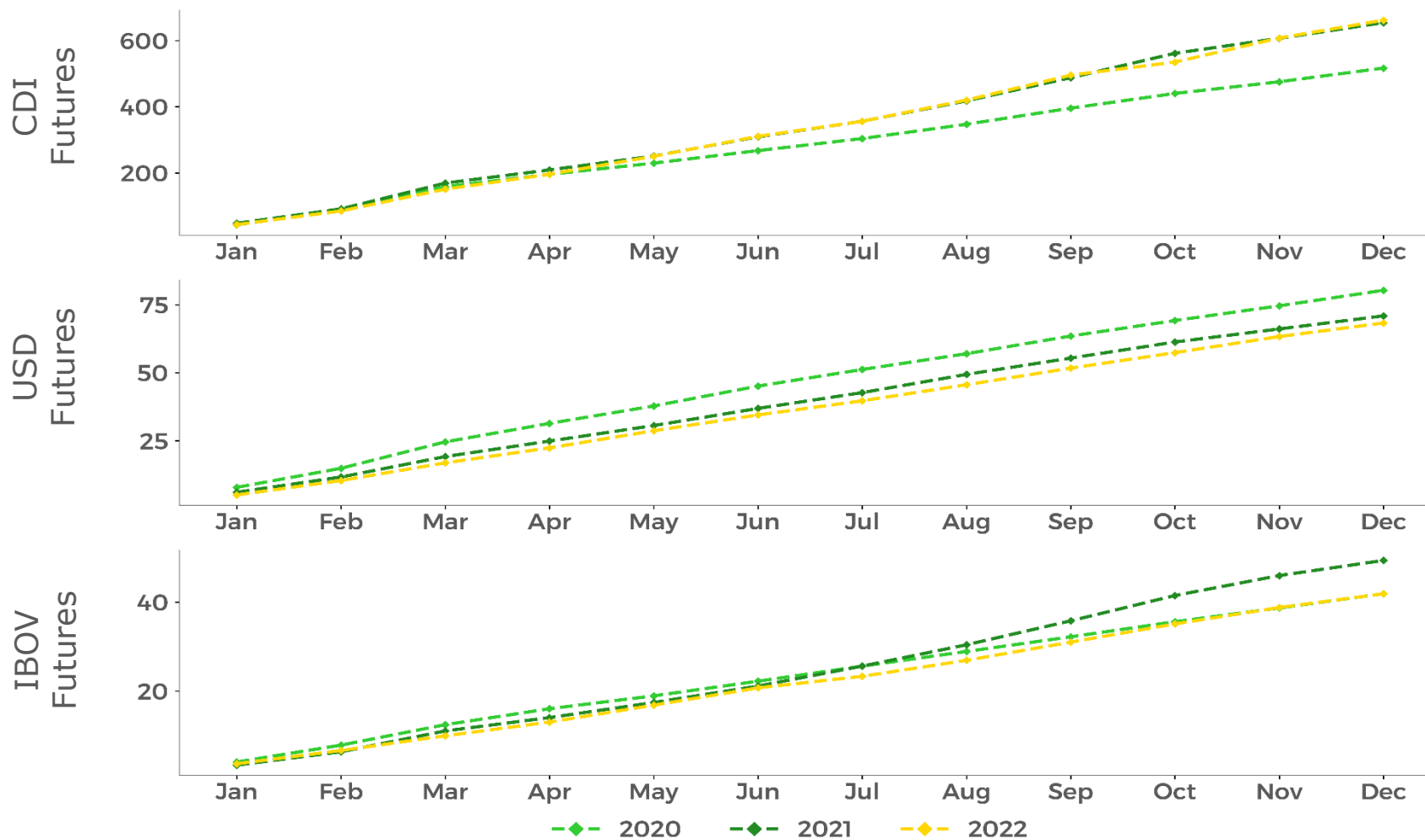
Source: Organized Market Administrators



## 4. Secondary markets

### 4.2. Derivatives

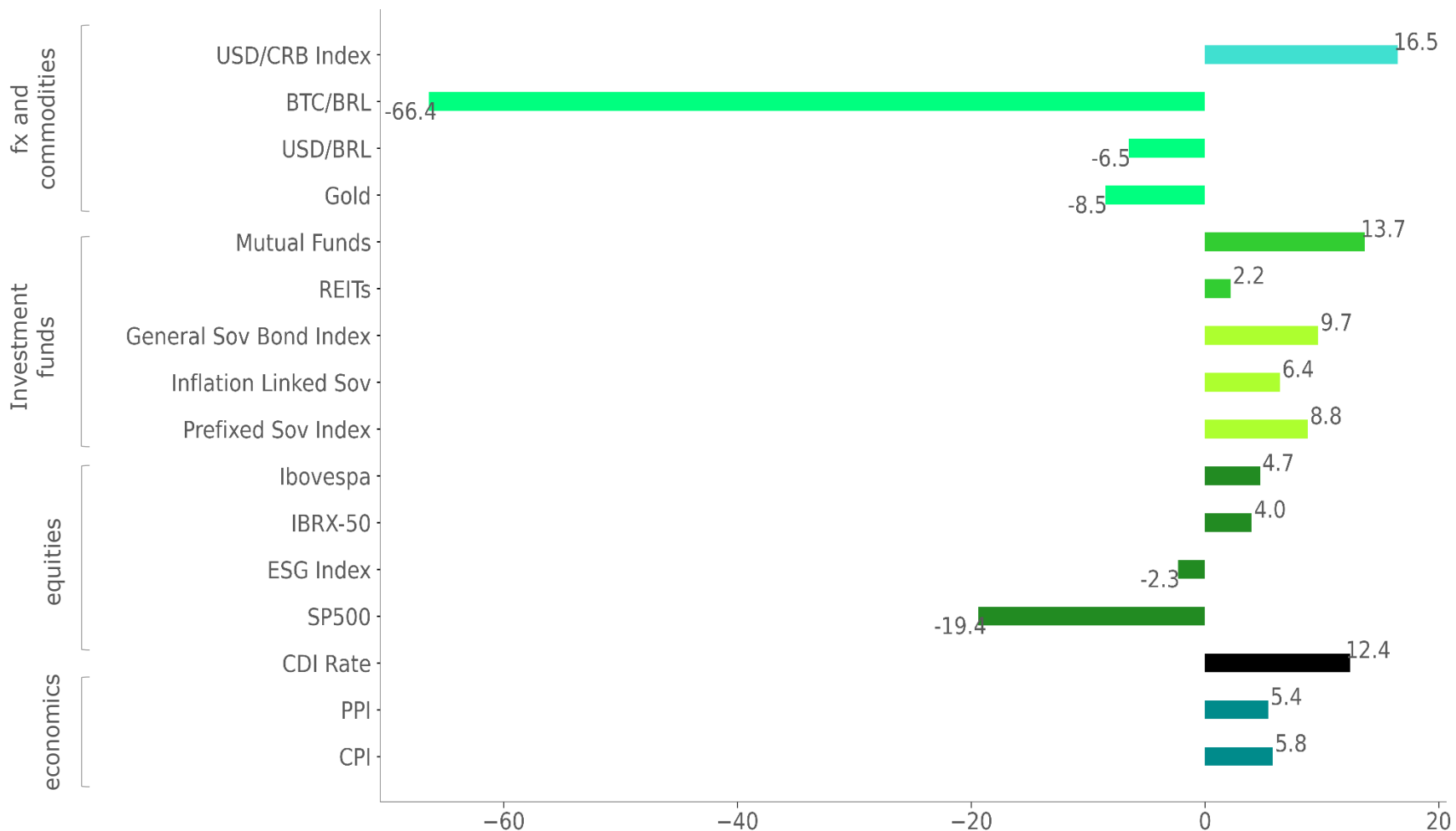
4.2.2. Derivatives – millions of contracts settled on exchanges (accumulated)



Source: Organized Market Administrators

# 5. Asset returns

## 5.1. YTD % asset returns



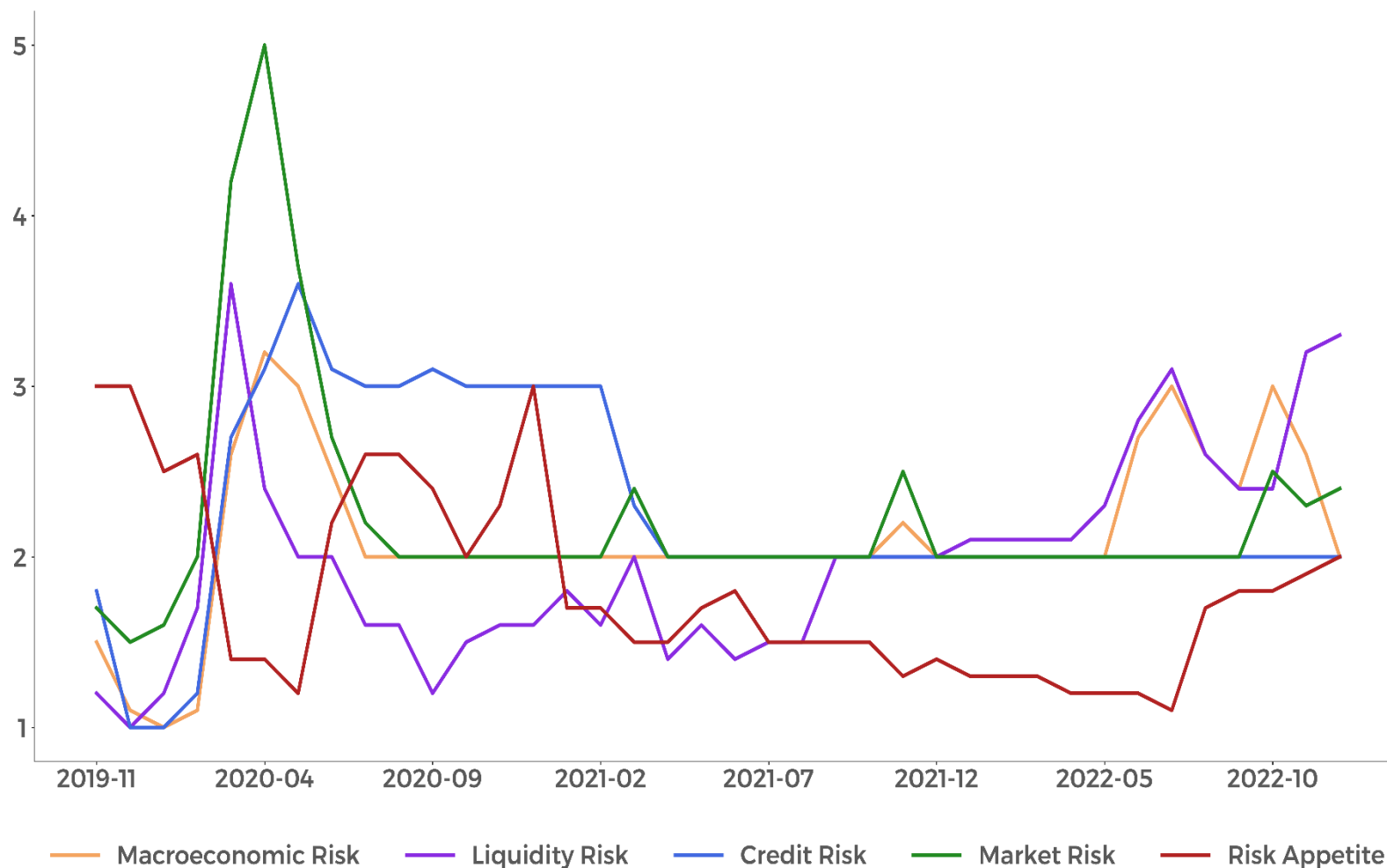
Source: Economatca, Bloomberg

The background is a dark teal color with faint, semi-transparent charts and data points. On the left, there are several diamond-shaped outlines. In the upper right, there is a bar chart with values 110, 90, 87, 88, and 91. In the lower right, there is a pie chart with a segment labeled 19%.

# RISK SCENARIO

# 6. Risk map

## 6.1. Risk map – last 36 months



Calculated by CVM according to Methodology

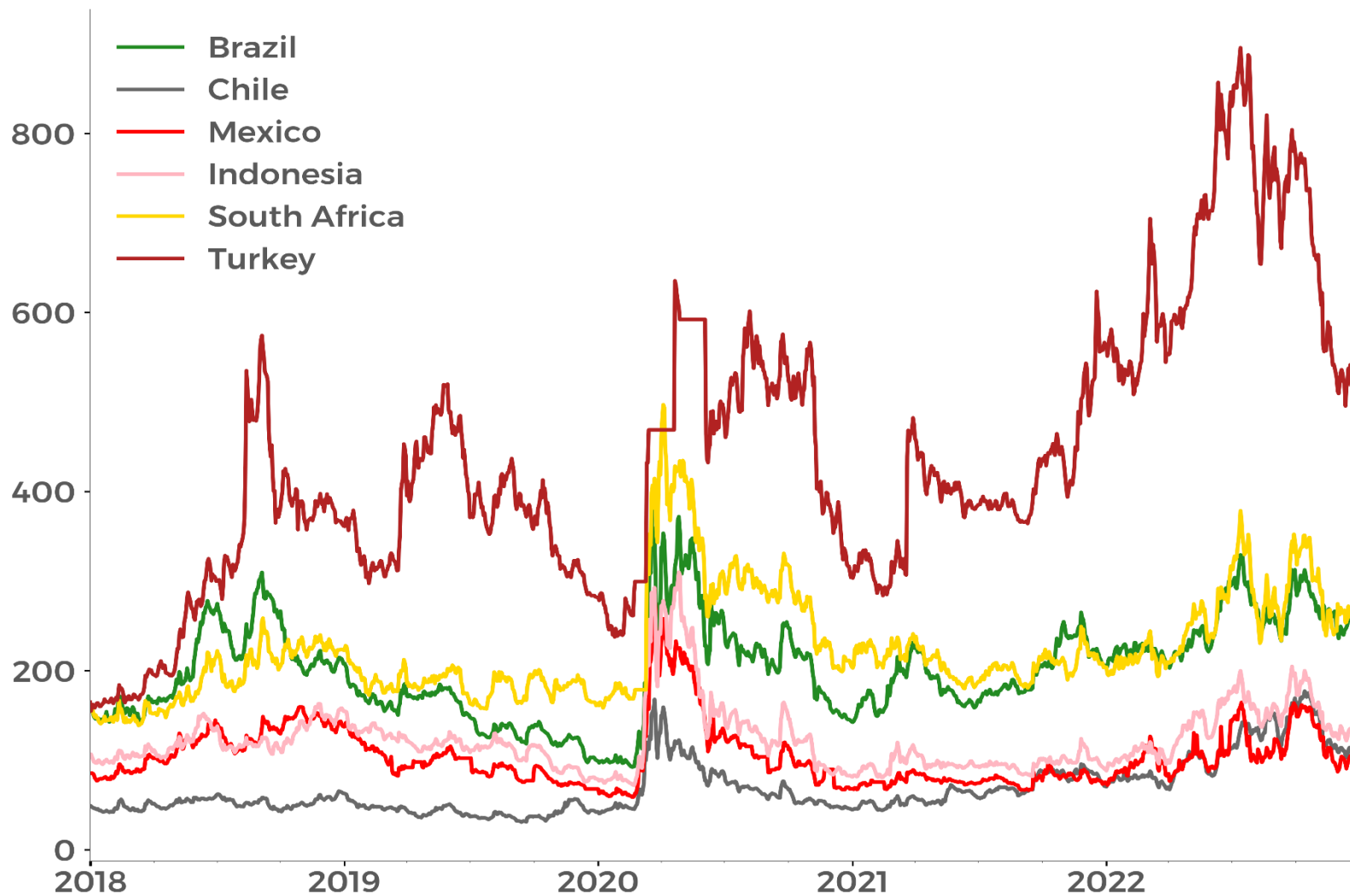
## 6. Risk map - Highlights

	MACRO	MARKET	LIQUIDITY	RISK APPETITE	CREDIT
<b>2022-Q4</b>	↓ 2.0	↑ 2.4	↑ 3.3	↑ 2.0	2.0
<b>2022-Q3</b>	2.4	2.0	2.4	1.8	2.0

- In the context of the fourth quarter, marked by some recovery in global equity markets (8.1), decrease in volatility (8.2 and 8.4) and positive returns in the global fixed income market (8.3) after some slowdown in the upward movement of international interest rate curves, one is able to point out a decrease in our indicator of macroeconomic risk and concomitant increases in our liquidity, market, and risk appetite indicators.
- Regarding the evolution of the Risk Map indicators, one cannot disregard the influence of the electoral process on the macroeconomic risk indicator (7.1), which has observed some increase during the elections and subsequent decline. A similar effect can be observed in the market risk indicator - its variable income component (8.2) was impacted by higher volatility during the elections, even though its national fixed income component (8.6) has supported overall increase in the end of the quarter, on the wake of more pessimistic views about sovereign fiscal dynamics.
- Finally, it is worth detailing the behavior of the risk appetite indicator. The main factor behind its increase was its component of national sovereign spread in dollars (9.2), whose behavior was distinct from other emerging markets and also distinct from the upward movement of the national interest rate curve, which showed negative performance (8.5) and high volatility (8.6) during most of the last quarter, as commented above.

# 7. Macroeconomic risk

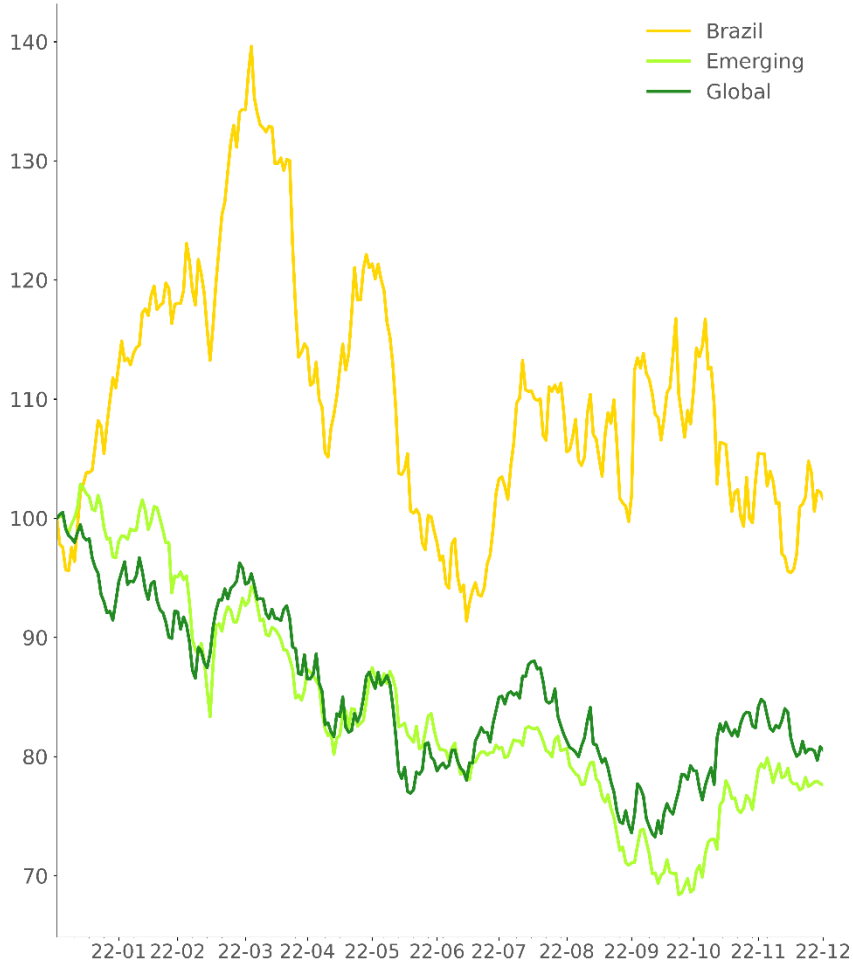
7.1. Sovereign CDS – emerging economies (basis points)



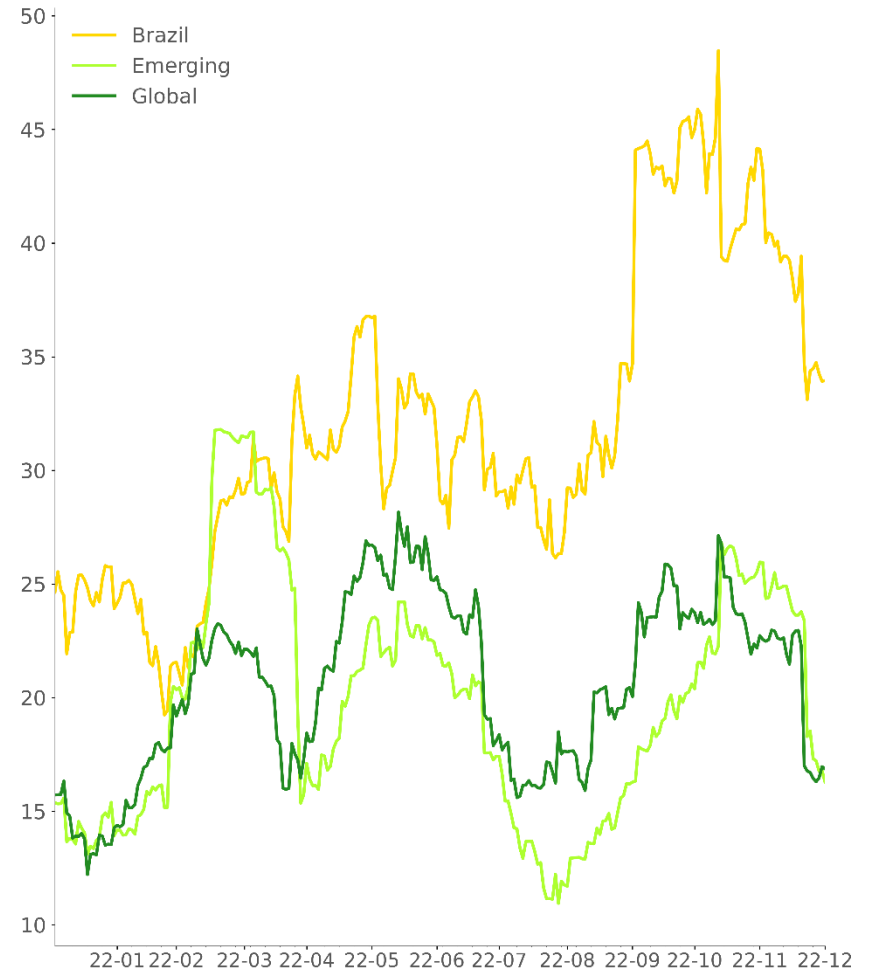
Source: Bloomberg

# 8. Market risk

## 8.1. MSCI equity indexes – last 12 months return

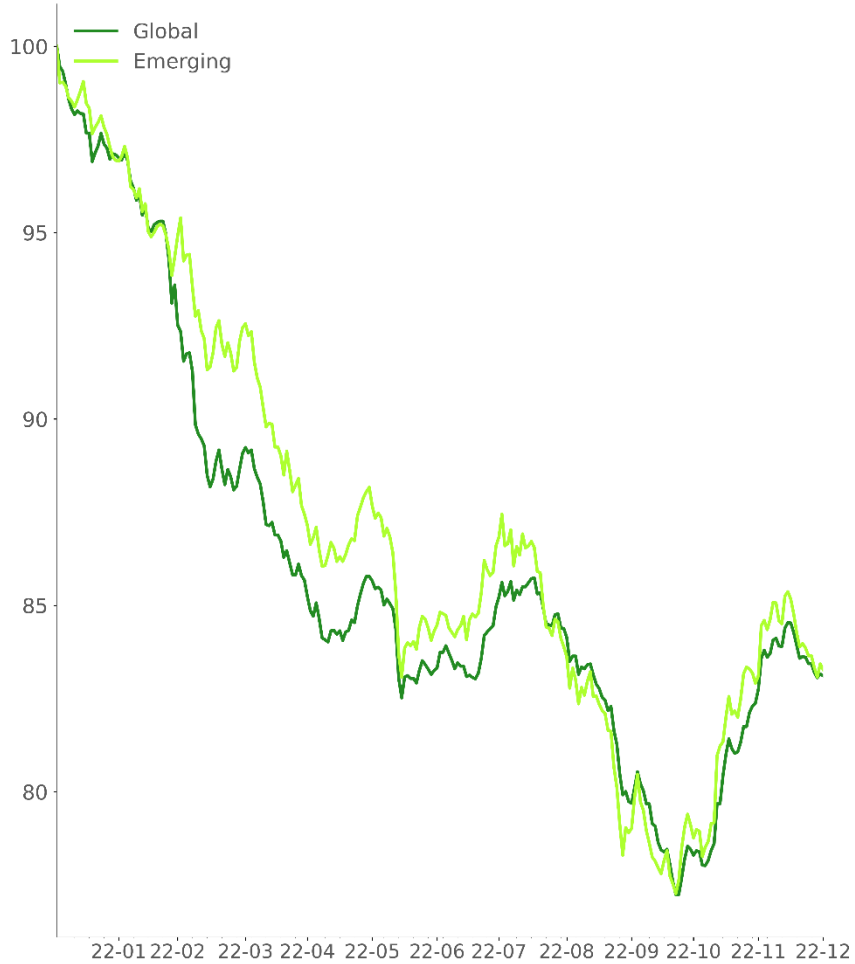


## 8.2. MSCI equity indexes – volatility

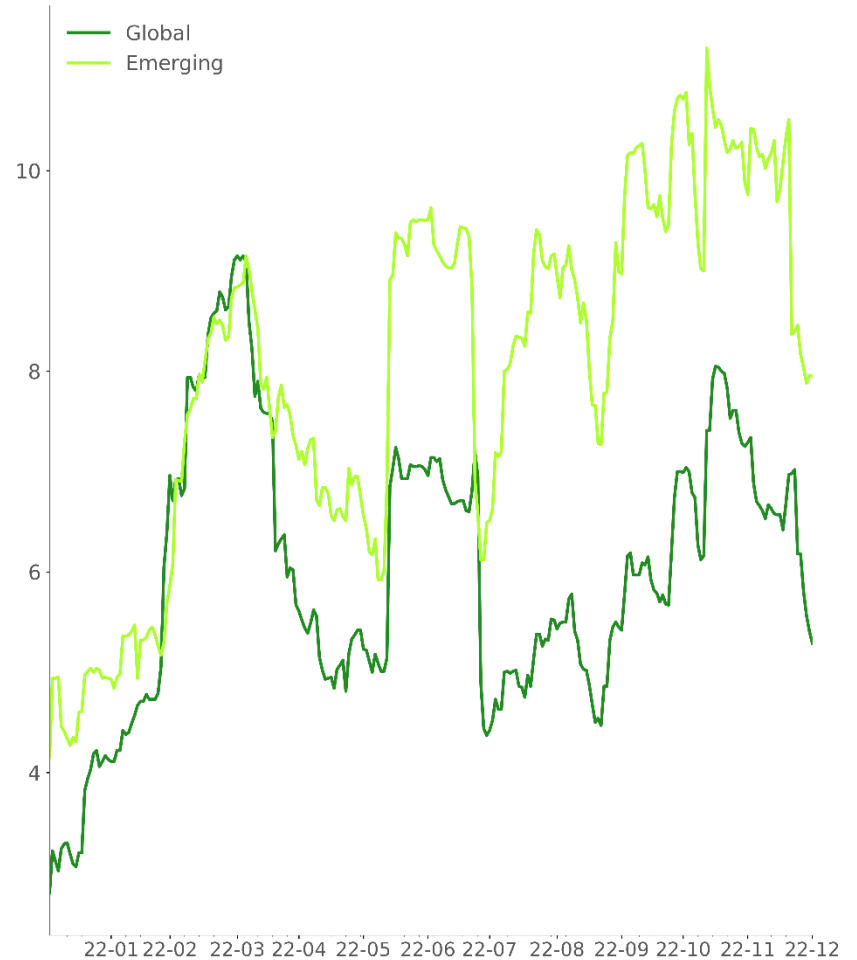


# 8. Market risk

### 8.3. Corporate bond indexes – last 12 months return



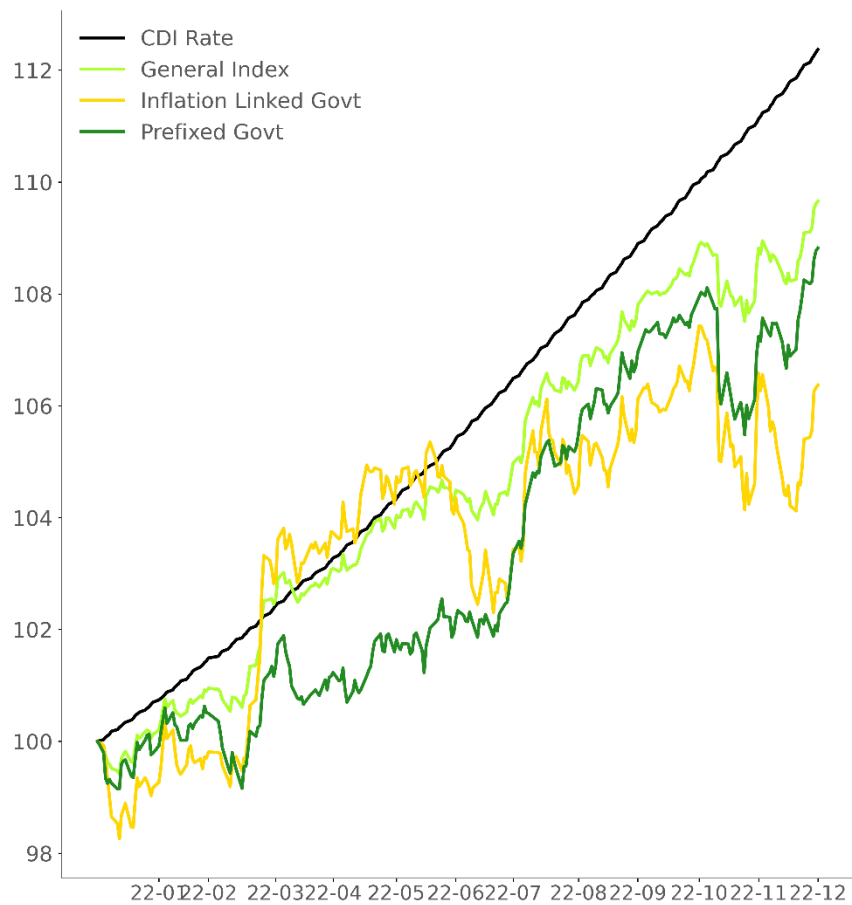
### 8.4. Corporate bond indexes – volatility



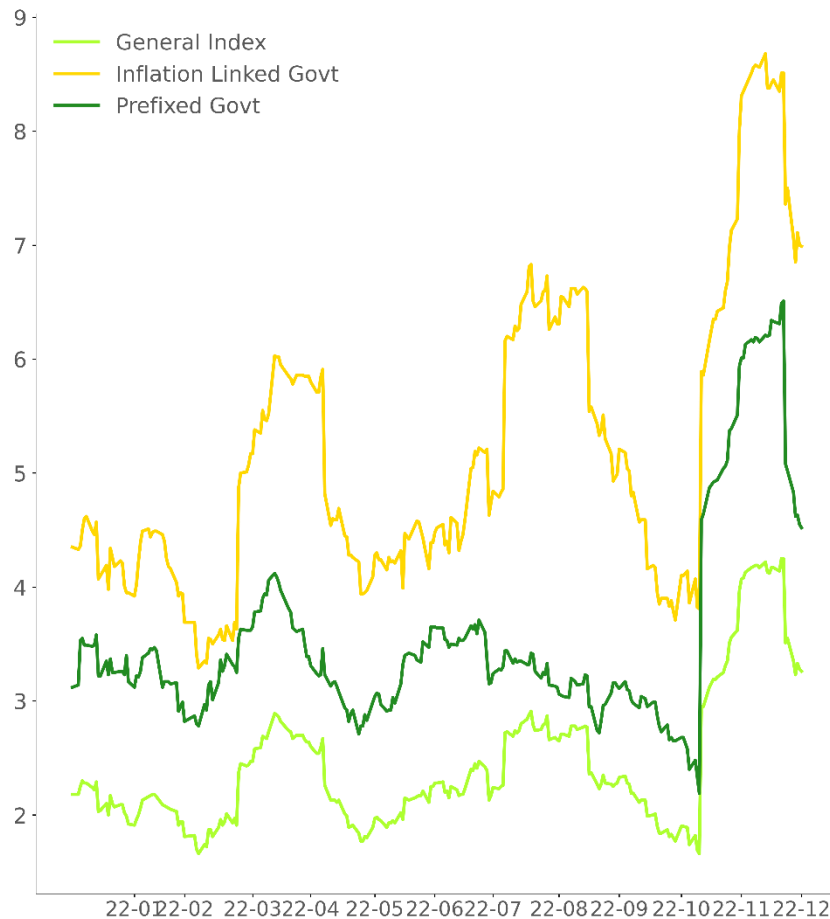


## 8. Market risk

### 8.5. National fixed income indexes – last 12 months return

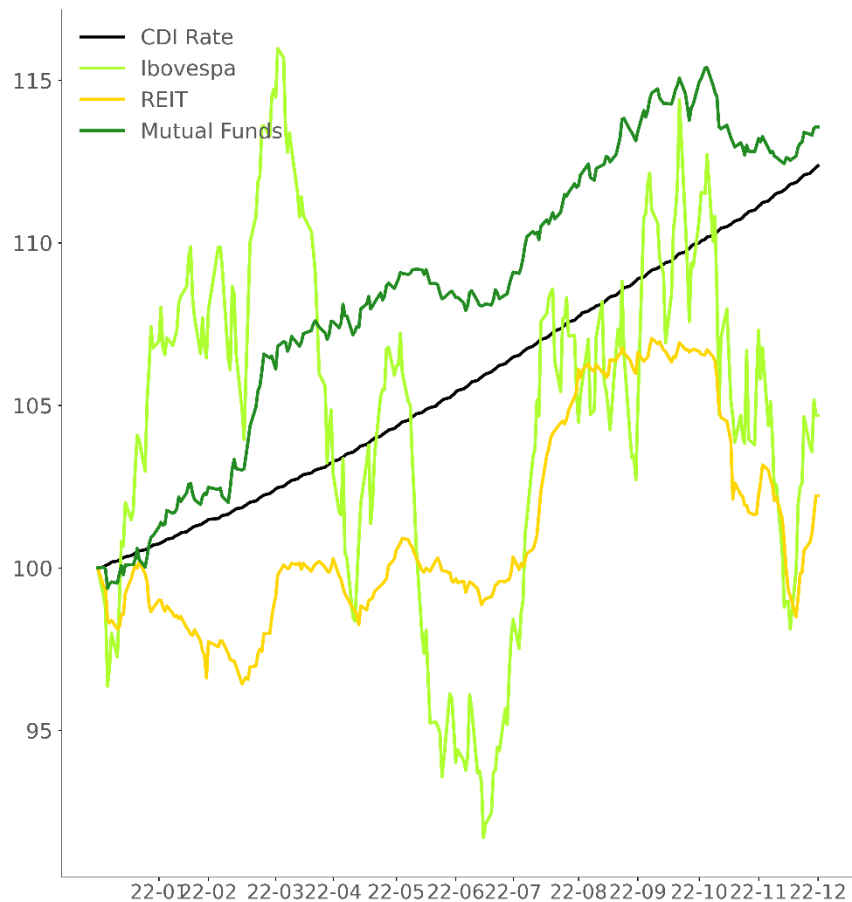


### 8.6. National fixed income indexes – volatility

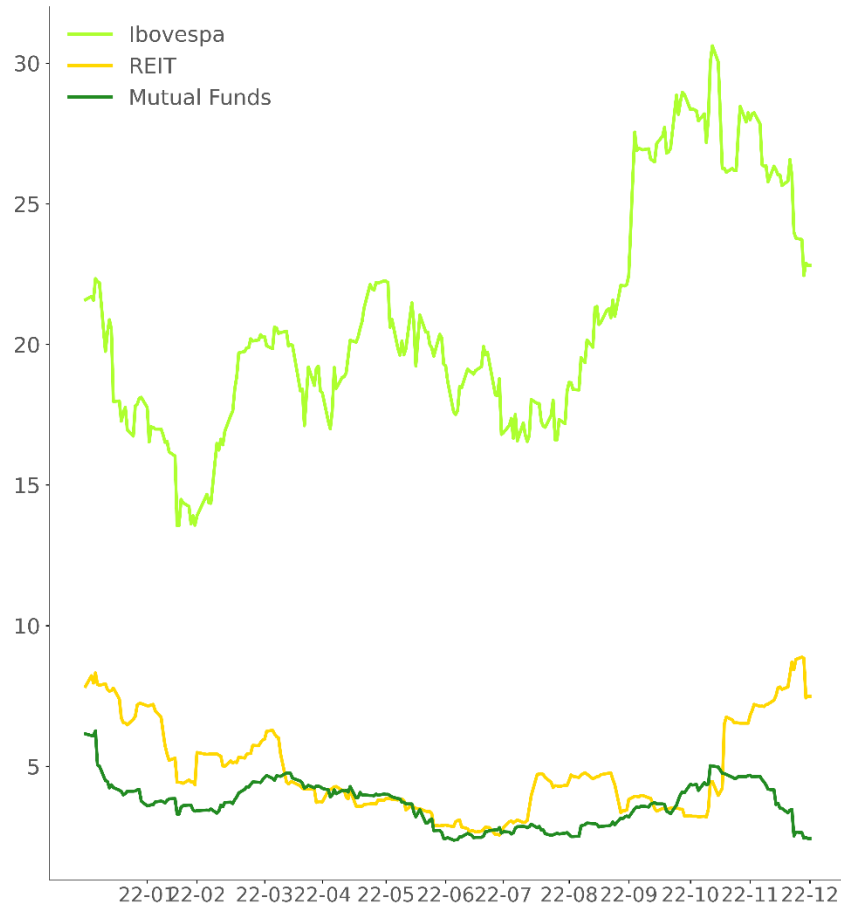


## 8. Market risk

### 8.7. National variable income indexes – last 12 months return



### 8.8. National variable income indexes – volatility



# 9. Risk appetite

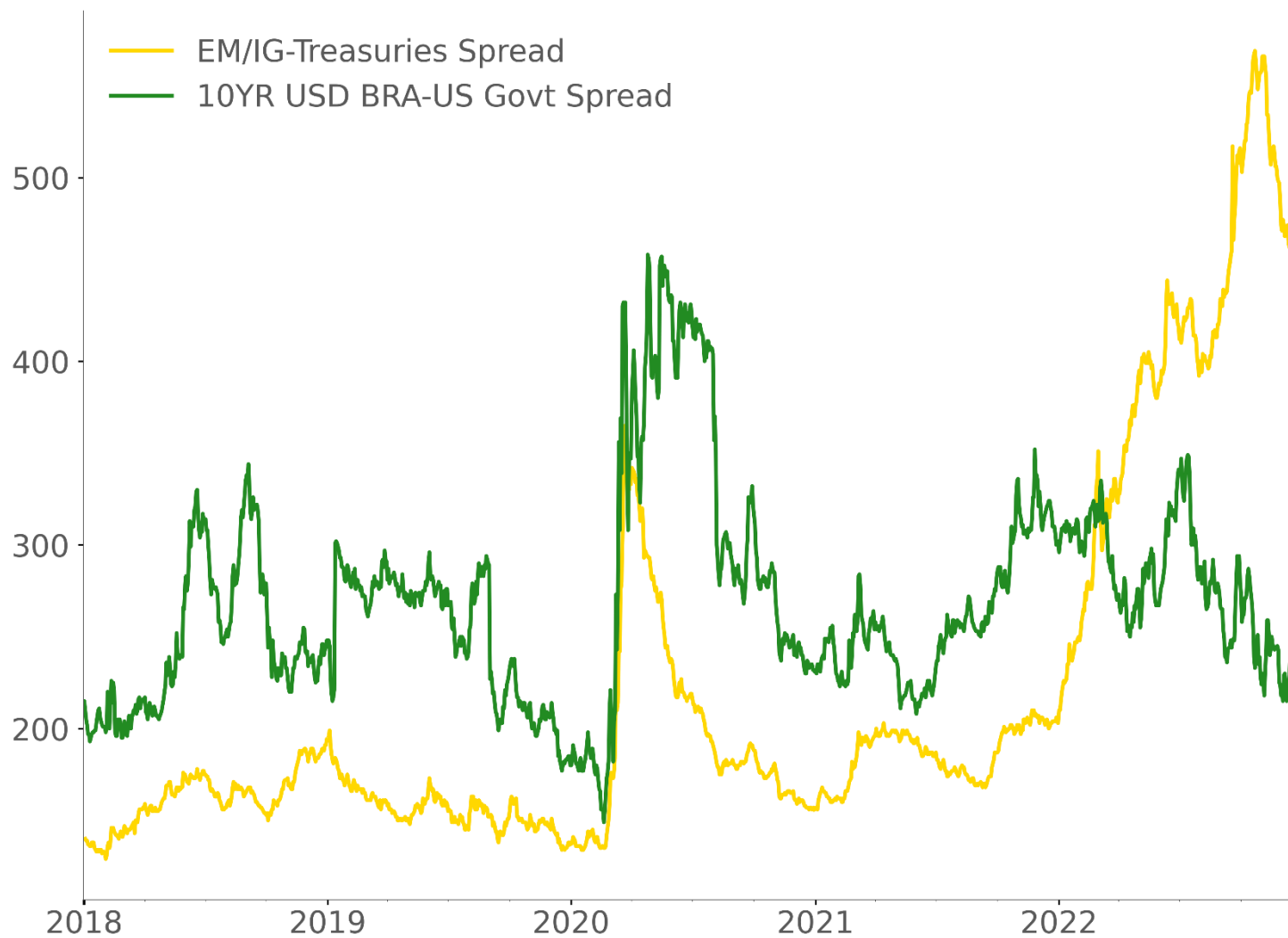
9.1. Adjusted estimated forward PE ratio (Z-Score) – MSCI equity indexes



Source: Bloomberg

# 9. Risk appetite

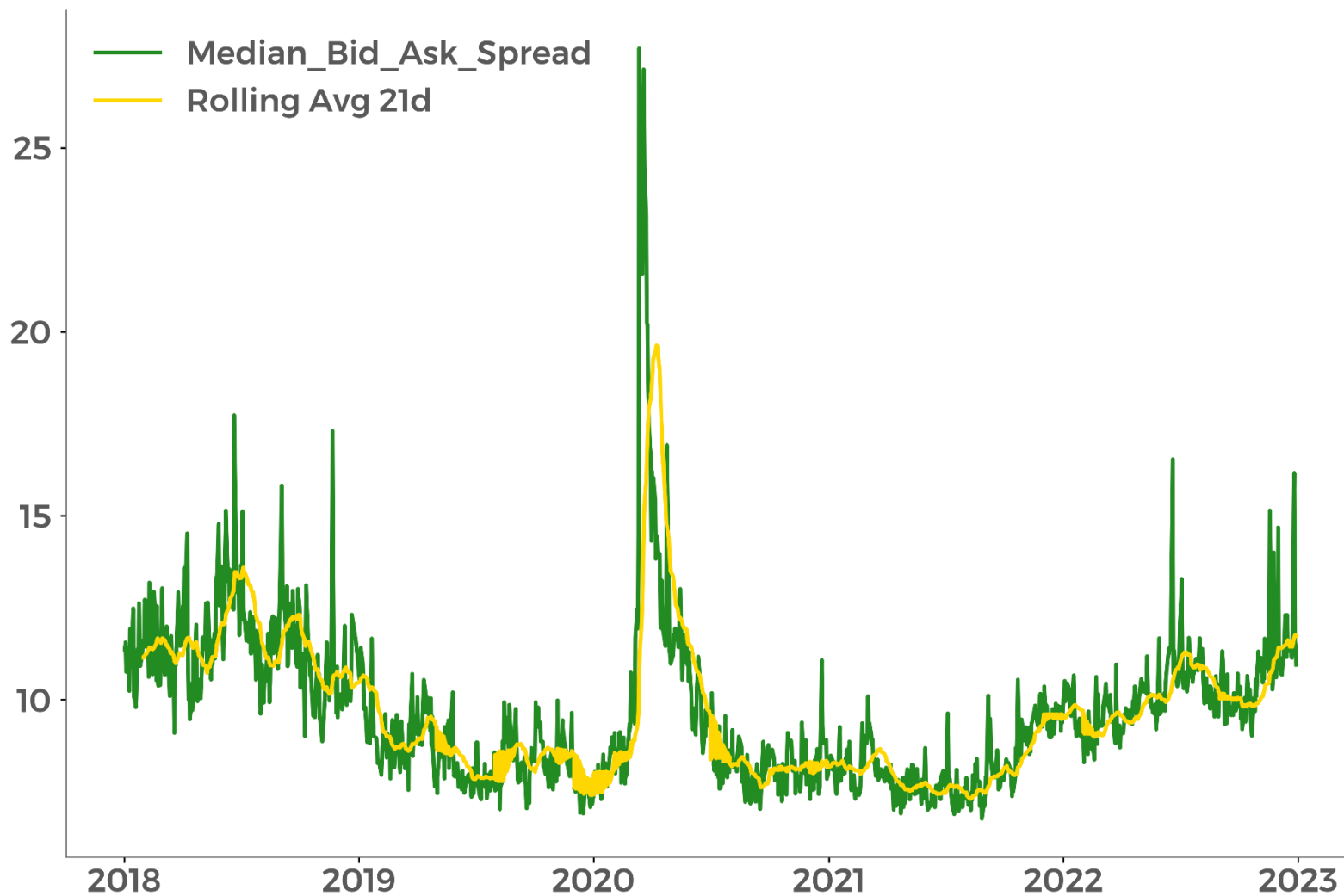
9.2. Spreads vs US treasuries (basis points)



Source: Bloomberg

# 10. Liquidity risk

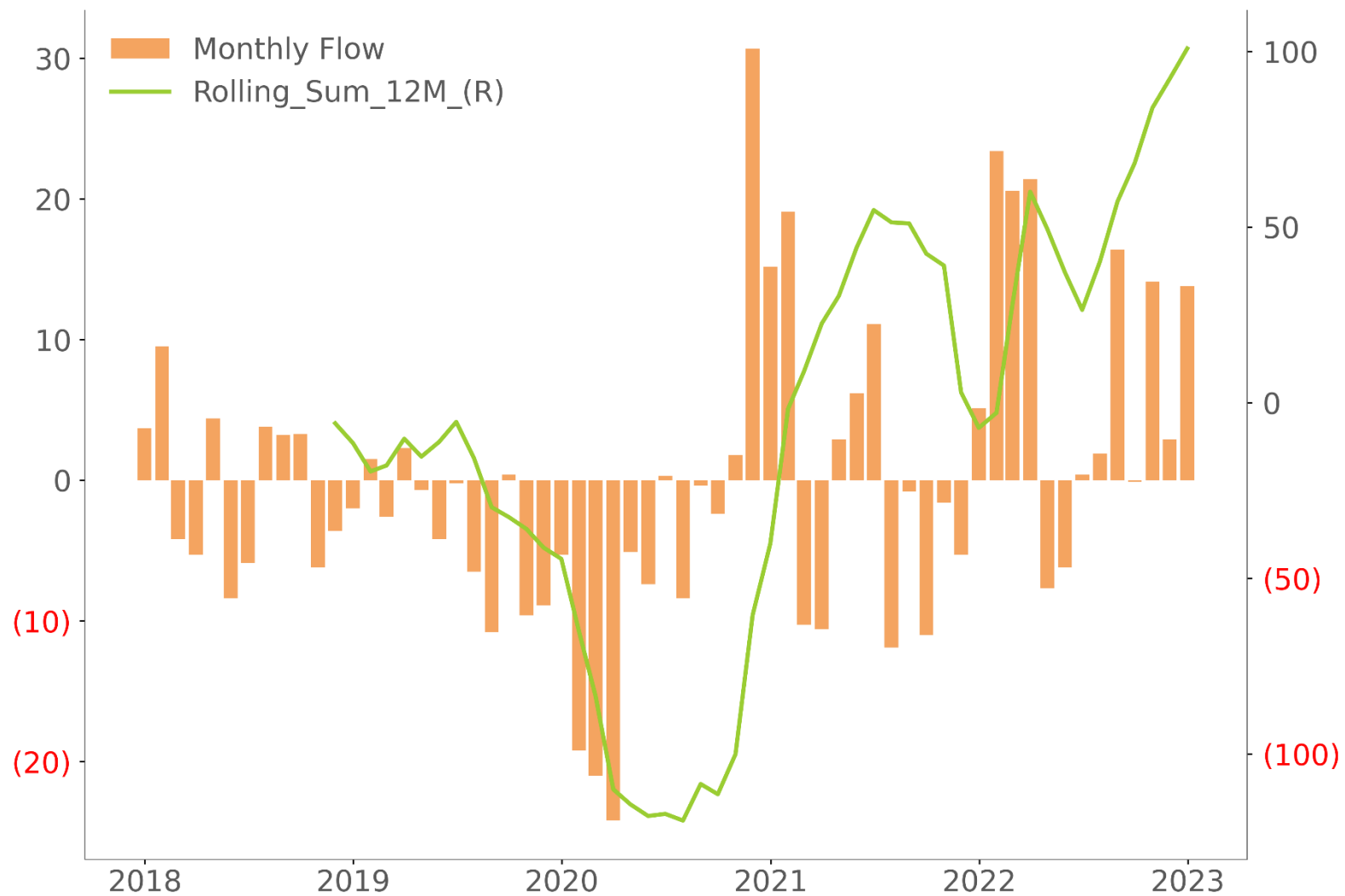
10.1. Bid-Ask spread index – equities (basis points)



Source: Bloomberg

# 10. Liquidity risk

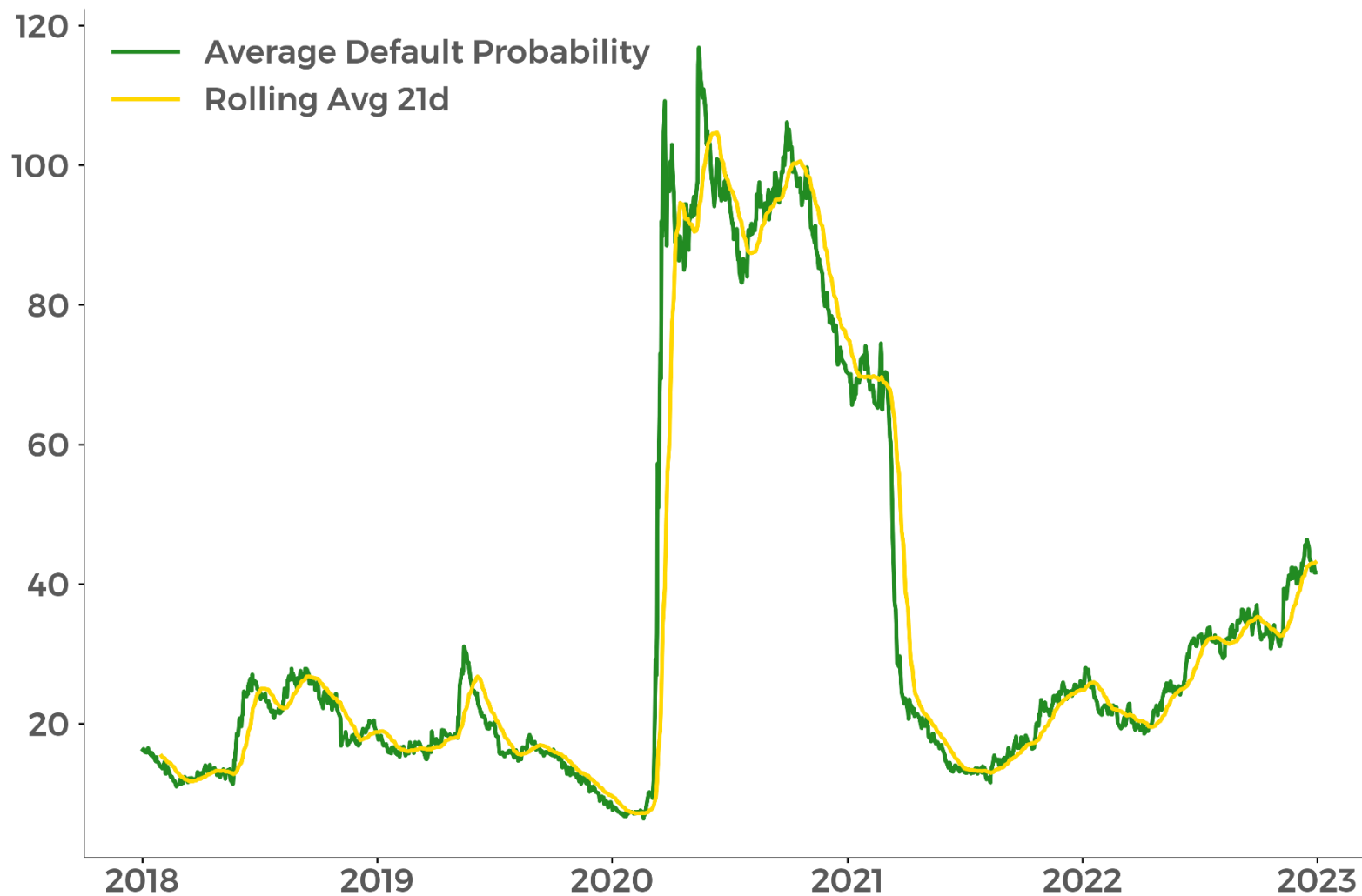
10.2. Net foreign investor inflows on secondary equity markets (US\$ bi)



Source: Bloomberg

# 11. Credit risk

11.1. Default probability index – equities (basis points)



Source: Bloomberg

# Methodology

## Risk map

**Macro risk:** simple monthly average of the daily Z-score (2500 day rolling window) of the 5YR Brazilian sovereign CDS (graph 1.3). Z-score Intervals and corresponding Risk Scale: above 2sd => 5; between 1,5 e 2sd => 4; between 0,5 e 1,5sd => 3; between -1 e 0,5sd=> 2; below -1sd => 1.

**Market risk:** arithmetic average of two composites, respectively the arithmetic monthly average of the daily Z-score (1250 day rolling window) of the 30 day realized annualized volatility of the MSCI Brasil Index (equities, see below) and the Anbima IMA-G Index (fixed income, see below). Z-score Intervals and corresponding Risk Scale: above 2sd => 5; between 1,5 e 2sd => 4; between 0,5 e 1,5sd => 3; between -1 e 0,5sd=> 2; below -1sd => 1.

**Liquidity risk:** simple monthly average of the daily Z-score (1250 day rolling window) of the Bid-Ask Spread Index (see below) . Z-score Intervals and corresponding Risk Scale: above 2sd => 5; between 1,5 e 2sd => 4; between 0,5 e 1,5sd => 3; between -1 e 0,5sd=> 2; below -1sd => 1.

**Risk appetite:** weighted average of three composites: first, the arithmetic average of the Adjusted Estimated PE Ratio, with a 0.5 weight; second, the arithmetic monthly average of the daily Z-score (1250 day rolling window) of the other two series that compose the Risk Appetite section (see below), each series with a weight equal to 0.25. Z-score Intervals and corresponding Risk Scale for the Adjusted Estimated PE Ratio: above 2sd => 5 between 1,5 e 2sd => 4; Between 0,5 and 1,5sd => 3; Between -1 and 0,5sd => 2; Below -1sd => 1. Z-score Intervals and corresponding Risk Scale for remaining series: below -2sd => 5; between -1,5 e -0,5sd => 4; between -0,5 e 1sd => 3; between 1 e 2sd => 2; above 2sd => 1.

**Credit risk:** simple monthly average of the daily Z-score (1250 day rolling window) of the Weighted Average Default Probability Index (see below). Z-score Intervals and corresponding Risk Scale: above 2sd => 5; between 1,5 and 2sd => 4; between 0,5 and 1,5sd => 3; between -1 e 0,5sd=> 2; below -1sd => 1.

## Macro risk

**Sovereign CDS Spreads:** The graphs depict the daily trend of the closing price (in b.p.) of the 5YR sovereign CDS spreads of some emerging markets usually considered peers to Brazil.



# Methodology

## Market indexes

**MSCI equity indexes:** the MSCI World Index (denominated in this report as “Global”) reflects the performance of the equity markets of several global markets. The MSCI Emerging Markets Index (denominated in this report as “Emerging”) reflects the performance of the equity markets of several emerging markets. The MSCI Indexes also reflect single markets, such as the case of the MSCI Brazil Index.

**Corporate bond indexes:** indexes developed by Barclays/Bloomberg to measure the performance of investment grade bonds, converted to USD when appropriate. The BEHGTRUU Index (denominated in this report as “Emerging”) refers to bonds in emerging markets, while the LGCPTRUU Index (denominated in this report as “Global”) does the same for the global markets. In Bloomberg methodology, the bonds are weighted by market value, unhedged.

**Índices de Referência:** IRF-M = index composed by a basket of sovereign fixed-rate bonds (LTN and NTN-F). IMA-B = fixed income index that depicts the trend, at market prices, of a basket of retail price inflation-linked sovereign bonds (called NTN-B). IHFA = index for the mutual fund industry in Brazil, whose value reflects, in local currency, the performance of a hypothetical portfolio of mutual funds selected according to a methodology developed by ANBIMA. IFIX = main index for the Brazilian REIT industry. IMA-G = weighted average of the daily returns of IMA-B, IMA-C (wholesale price inflation linked sovereign bond index), IMA-S (floating rate sovereign bonds index) e IRF-M indexes. CDI = index for the main bank overnight rate in Brazil, widely used as benchmark.

**Volatility:** dispersion measure for the realized returns of an index or of a security. The 30 day realized volatility refers to the annualized standard deviation of the closing price returns in the last 30 trading days, expressed in percentage terms.

## Liquidity indexes

**Bid-Ask Spread:** difference of bid and ask prices of a security divided by its midprice, frequently used as a gauge for market liquidity. The lower this ratio, the more liquid the security tends to be. The graph refers to the daily trend of the median spread calculated based on a sample comprised by half of the Ibovespa Index members with the lowest turnover volume for a given month.

**Net foreign inflows on equities:** Monthly foreign investor net inflows in the B3 secondary market for equities and equities derivatives.

# Methodology

## Risk appetite

**Adjusted estimated forward PE ratio:** ratio between the current price of an index or security and its estimated positive earnings for the following accumulated 12 months, according to the consensus of market analysts, excluding companies with negative EPS projections. The PE ratio can be understood as the payback time estimated to recover through its profits the capital investment in a given company. A high PE ratio indicates that the security might be overvalued relative to its recent profit potential. Inversely, a low PE ratio points that the security might be undervalued relative to its profit potential. In this report, the country/region analysis is done using the daily ratio for the corresponding MSCI Indexes as a reference. The calculated indicators refer to the Z-score (1250 trading day rolling window) of such ratios.

**EM\_IG vs US Treasuries:** spread between a USD investment grade mixed corporate/sovereign bond index for emerging markets and the a US treasuries index, expressed as an annual percentage yield. Calculations use the BEHGTRUU Index and the BUSY Index, both available through Bloomberg.

**USD Sovereign Brazil vs US Treasuries:** difference between the yields of a generic 10YR USD-denominated sovereign Brazilian bond and an analogous treasury, both calculated by Bloomberg.

## Credit risk

**Default probability index:** grasps the average default probability of non-holding non-financial corporates traded in the B3 exchange. Its calculation proceeds as follows: for each trading day and for the whole available sample of eligible companies in that day, the weighted average (by market cap) of the 1YR default probabilities is calculated ("BB\_1YR\_DEFAULT\_PROB"), as made available by Bloomberg.