Consultation on assessing and addressing the market impact of MSCI Index Reviews

August 2020

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Background

- Continued growth in index linked product AUM and index based investing over the last decade have led MSCI to conduct a focused examination around potential index methodology changes that may better address the overall market impact of Index Reviews

- MSCI opens a consultation around the following proposals which can potentially ease replication and related index review implementation challenges:

  - ‘Staggering’ the implementation of all Semi-Annual (SAIR) and Quarterly Index Reviews (QIR) for both Global Investable Market Indexes (GIMI) and Non-Market Cap Weighted Indexes

  - Switch a Semi-Annual Index Review to a “light” rebalancing scenario under conditions of market stress as introduced by the MSCI Market Monitoring Framework*

- MSCI may additionally launch a subsequent consultation on selected technical aspects of the topics covered herein

- MSCI welcomes feedback from the investment community on these topics until December 15, 2020. MSCI will announce the results of this consultation on or before January 31, 2021

*The MSCI Market Monitoring Framework aims to continually assess the potential impact of market conditions on regular Index Reviews along three key dimensions: Market Functioning, Market Liquidity and Data Availability.

Proposal Summary

Market Conditions	Proposal/Recommendation	Rationale
'Normal'	❑ Employ a staggered implementation* of rebalancing for GIMI and Non-Market cap weighted Indexes to ease potential market impact around index review implementation	▪ Increased market impact due the AUM growth ▪ Significant growth in Daily Traded Values on IR implementation dates ▪ Efficient way to manage the size of the IR 'trade' ▪ Market participant feedback
'Market Stress'	❑ Additionally opt for a "light" (QIR) rebalancing to replace a SAIR in times of extreme market volatility to reduce the rebalancing impact	▪ Material increase in market impact (bid/offer size) and transaction costs ▪ Potential increase in migrations due to extreme volatility

*A staggered implementation refers to an Index Review that will be implemented over a period of time leading into the effective date (i.e. approximately 33% of overall 'trade' each day for 3 days)

Index Review Implementation under Normal Market Conditions

Proposal

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Proposal: Staggered Implementation as a More Efficient Way to Manage the Index Review

- In addition to the substantial growth in index linked product AUM and index based investing already noted, we have also observed significant growth in Daily Traded Values on Index Review implementation dates (T-1)
- Based on historical analysis, using a ‘staggered’ implementation approach may have been beneficial in managing overall transaction costs
- MSCI **proposes to implement a staggered approach** across the implementation of MSCI Index Reviews
  - Staggering an index review implementation involves the conversion from ‘current’ index to ‘pro forma’ index over an implementation period that would commence **3 days prior to the Index Review effective date**
  - MSCI proposes to apply a staggered implementation consistently across the MSCI Global Investable Market Indexes (GIMI) and all Non-Market Cap Weighted Indexes

Staggered Implementation: Illustration

- During an Index Review, the index changes are defined in terms of the 'number of shares changes in the index*' (NOS)
  - Staggering the NOS changes allows the index review implementation to be determined ahead and helps avoid potential reverse turnover in the staggering period
- With the current single day implementation, the NOS changes are expected to change as follows:

	Current	T-3	T-2	T-1	Effective Date
Company A - add	**0**	**0**	**0**	**7,500**	**7,500**
NOS Change				7,500	
Company B – delete	**5,100**	**5,100**	**5,100**	**0**	**0**
NOS Change				-5,100	
Company C – FIF/NOS	**6,000**	**6,000**	**6,000**	**6,300**	**6,300**
NOS Change				300	

- With the proposed staggered 3-day implementation, the NOS changes will be linearly spread across 3 days, thereby reducing the number of shares to be traded per day to replicate

	Current	Stagger day1	Stagger day2	Stagger day3	Effective
Company A - add	0	2,500	5,000	7,500	7,500
NOS Change		2,500	2,500	2,500	
Company B – delete	5,100	3,400	1,700	0	0
NOS Change		-1,700	-1,700	-1,700	
Company C – FIF/NOS	6,000	6,100	6,200	6,300	6,300
NOS Change		100	100	100	

* Number of shares changes in the index for the MSCI GIMI is calculated as the index number of shares multiplied by the Foreign Inclusion Factor (FIF)

Impact of Staggered Implementation on Corporate Events

Various corporate events that impact MSCI Indexes around the implementation dates can be grouped into 3 broad categories:

	Event confirmation date	Event effective date	Impact
Case 1	Post Rebalance Ann Date	Before staggering period	No impact to staggered values
Case 2	Prior to Rebalance Ann Date	Within staggering period	No staggering until the effective date of the event, followed by relatively larger changes
Case 3	Post Rebalance Ann Date	Within staggering period	Maintain the NOS announced on t-9 until the effective date of the event, re-evaluate staggering post that

Timeline

May 18	**May 19**	**May 20**	**May 21**	**May 22**	**May 25**	**May 26**	**May 27**	**May 28**	**May 29**	**Jun 1**

T-9

Rebalance Ann Date

T-8

From T-8 to T-4 (Pro-forma period prior to staggering)

T-4

T-3

From T-3 to T-1 (Staggering Period)

T-1

T

Effective Date

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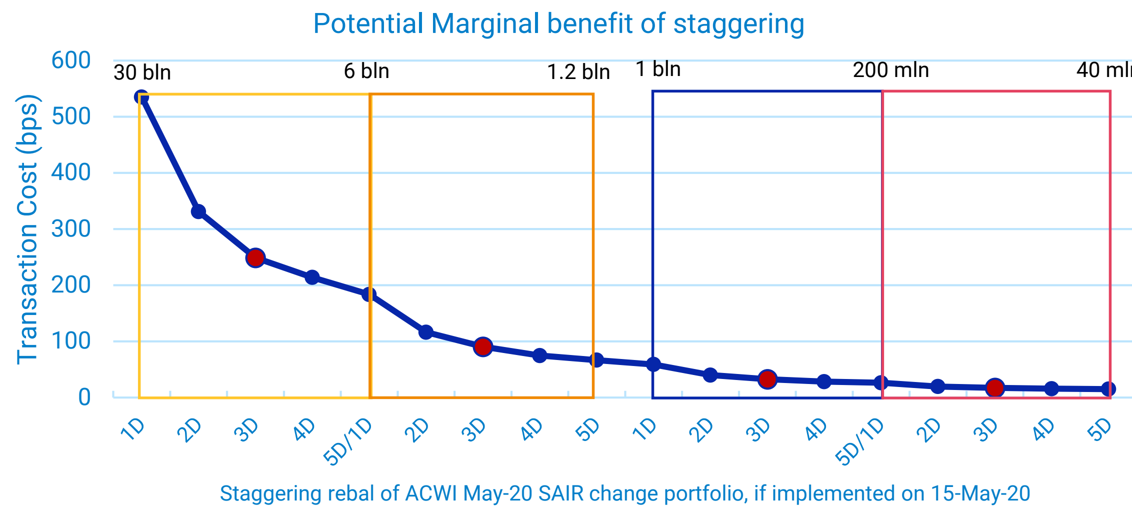
Potential Impact of a Staggered Rebalancing

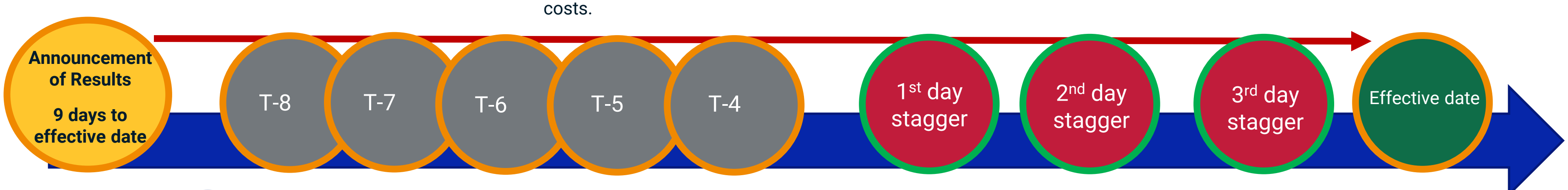
- A **staggered rebalancing** approach aims to split the implementation of rebalancing changes into several steps until it is fully implemented in the index
- **Three days** could provide a good balance between transaction cost reduction and sufficient time for implementation

While the marginal benefit may decrease with trade size, a staggered approach could allow for lower transaction costs



Source: MSCI, Virtu

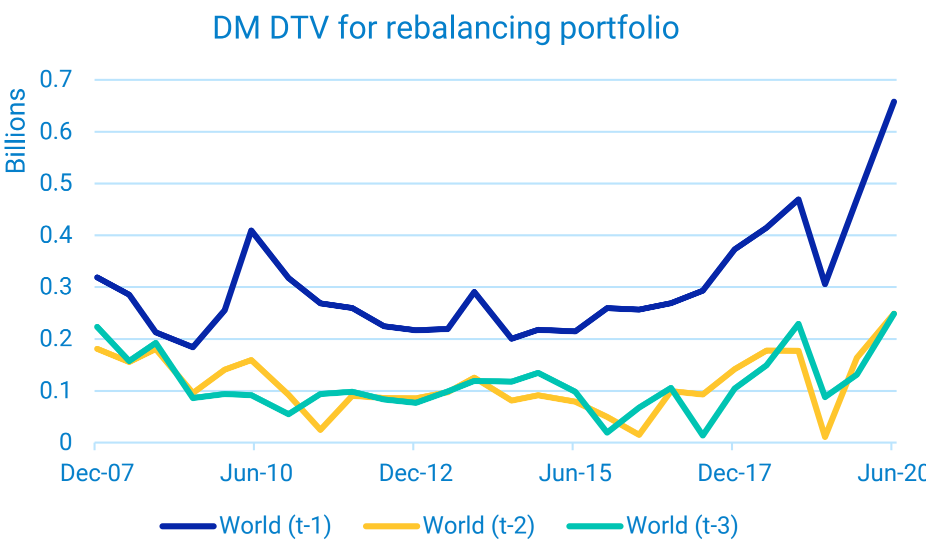
*For this analysis, a model (by Virtu) was used which measures trading costs using the difference between the average execution price and the prevailing price at the start of the order execution. This measure includes both the bid-ask spread as well as the price impact cost of the order. For market impact, Virtu uses a 60 business day historical volatility as main input to liquidity model. These historical examples are not indicative of future results or potential costs.

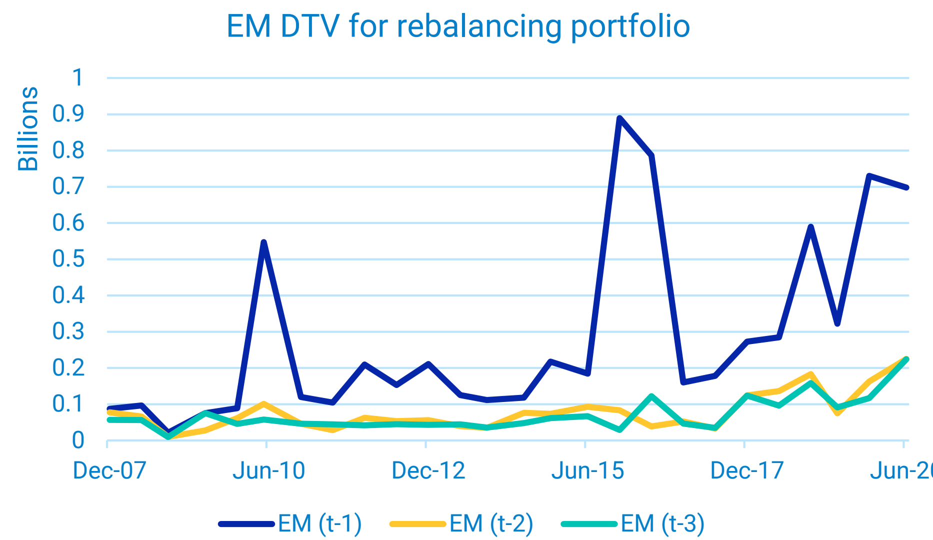


^Currently, MSCI calculates a variant of the MSCI USA Momentum Index that is staggered across three days

Daily Traded Values for rebalancing are on the rise

An increasing trend in terms of Daily Traded Value for the rebalancing portfolio* around the index review implementation date is observed





*Rebalancing portfolio can be defined as the portfolio (related to a given index) which reflect additions, deletions, and other maintenance changes required to fully replicate a given Index Review (effectively the full 'pro-forma' portfolio)

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Consideration of Alternative Measures

- MSCI also considered and examined these alternatives related to mitigation of the impact of Index Reviews

Considered Alternatives	Reasons for Not Adopting
❑ Applying wider buffers	▪ Wider buffers may deteriorate index representativeness
❑ Applying SAIR rules in place of QIRs to spread the index review changes	▪ More frequent SAIRs could increase annual turnover
❑ Setting ‘hard’ IR turnover constraints	▪ Rebalancing turnover has been generally stable and within acceptable range ▪ No observed increase in bid/ask spreads or other illiquidity measures outside volatile periods
❑ Split GIMI and non-market cap weighted index implementation	▪ Disconnecting GIMI and non-market cap weighted indexes may result in unnecessary methodology complexities for investors

Discussion Points

- Does the increased market impact of MSCI index review implementations now warrant MSCI to address the rebalancing related issues as noted?

- Do you agree with the proposal to stagger the implementation of index reviews across the MSCI GIMI and Non-Market Cap Weighted Indexes?
  - Do you agree with the proposed 3 days to stagger such implementation?
  - Should MSCI employ consistency of the staggered approach to all indexes as proposed or only the MSCI GIMI?
  - Should MSCI consider moving the announcement date of the index review results to provide greater time to process the rebalancing?

- Should MSCI consider other alternatives which could potentially ease market impact and facilitate implementation of index reviews? (i.e. a combination of staggering approach with other alternatives)

Index Review Implementation under Market Stress

Proposal

Proposal: Switch to a 'Light' Rebalancing during Market Stress conditions

- Historically, there have been noticeable spikes in liquidity and transaction cost metrics during times of market stress. While turnover and number of additions and deletions in 'normal' market conditions have generally been stable, increases are noticeably observed in periods where volatility is higher
- **In times of market stress, in addition to the staggered implementation, MSCI proposes to switch to a 'light' rebalancing**
  - A 'light' rebalancing generally focuses on replacing a scheduled SAIR with a QIR (if such QIR is defined by a methodology)
  - Employment of these measures would not be preceded by any public consultation
  - If the upcoming scheduled rebalance is already a QIR, then no change to the process would occur
- To determine market stress, MSCI would consider dimensions that are part of the MSCI Market Monitoring Framework as well as additional measures of market volatility

‘Light’ Rebalancing for Various Methodologies

- Differentiation of ‘normal’ rebalancing schedules are present across index methodologies
- As noted, under market stress conditions, a QIR rebalancing would *generally* be applied if defined by a methodology
- For methodologies which rebalance annually or where QIRs are not defined, MSCI would proceed as per the normal rebalancing schedule

Proposed Rebalancing schedules for various methodologies

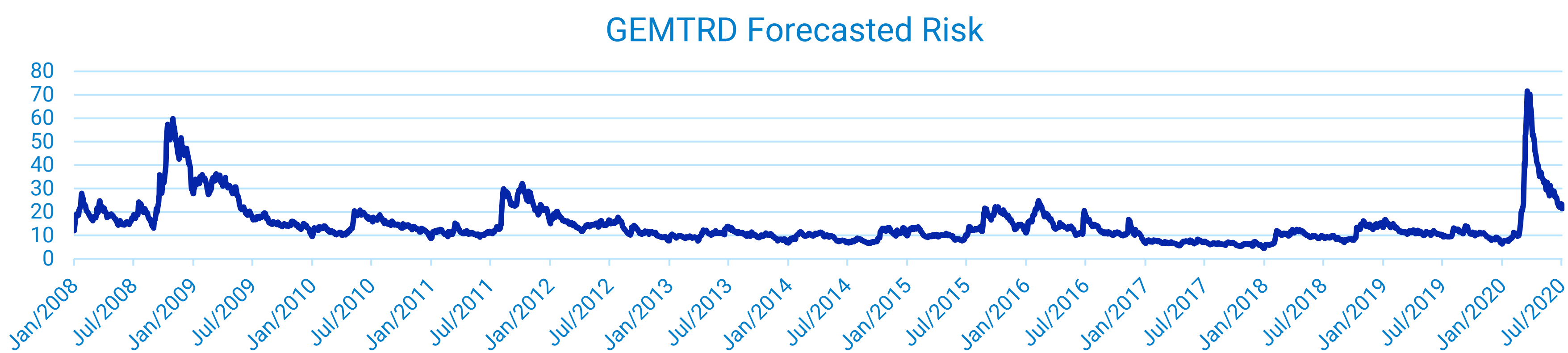
‘Normal’ Rebalancing Schedule	Proposed Rebalancing schedule during market stress	Index Methodology Example
Semi Annual + QIR	QIR	MSCI Global Investable Market Indexes; MSCI ESG Universal Indexes
Annual only	Annual	MSCI GDP Weighted Indexes
Annual + QIR	Annual	MSCI Top 50 Dividend Indexes
Semi-Annual only	Semi-Annual	MSCI Minimum Volatility Indexes
QIR only	QIR	MSCI Equal Weighted Indexes
Monthly	Monthly	MSCI Hedged Indexes

How should Market Stress be determined?

- The primary means to determine market stress will focus on the MSCI Market Monitoring Framework which looks at:
  - Market Functioning
  - Market Liquidity
  - Data Availability

- MSCI may also consider other measures which:
  - Appropriately capture market risk
  - Are sufficiently reactive to allow for prompt and timely decisions
  - Provide enough stability to consistently capture only 'extreme' events

As example, the Global Total Market Trading (GEMTRD) risk model could be considered as a measure of market stress/volatility. Note the peaks which show the 2008 GFC and COVID-19 crises



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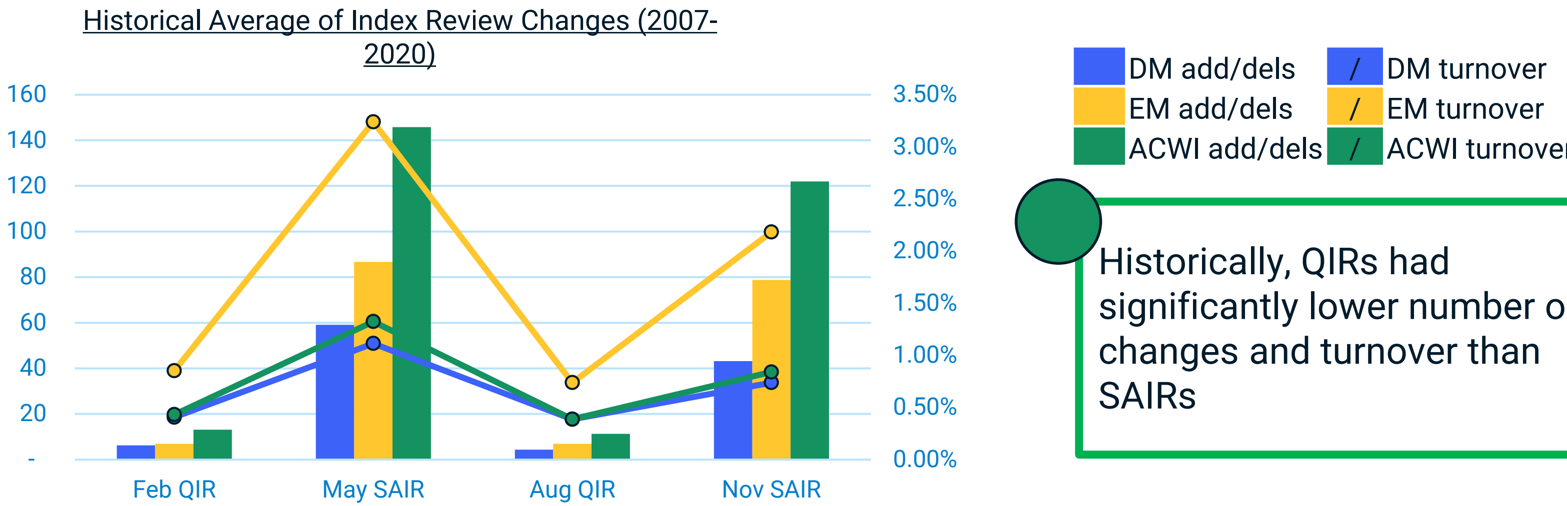
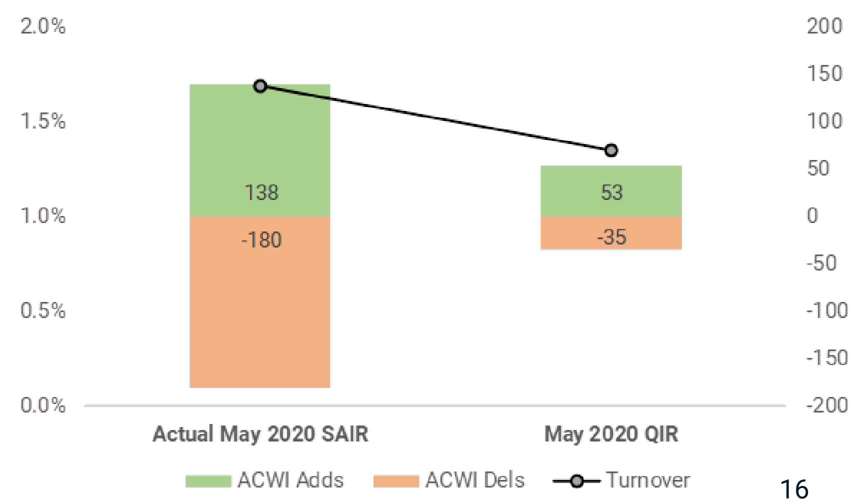
Applying QIR thresholds led to a reduced number of index changes



Historically, QIRs had significantly lower number of changes and turnover than SAIRs

Simulated May 2020 SAIR for ACWI using QIR thresholds

Turnover	1.687%	1.344%



Based on simulation of the May 2020 SAIR, applying QIR thresholds led to lower number of index review changes and turnover

Based on simulation of May 2020 SAIR using QIR thresholds, if FIF/NOS changes are not considered, turnover would be approximately 0.66%

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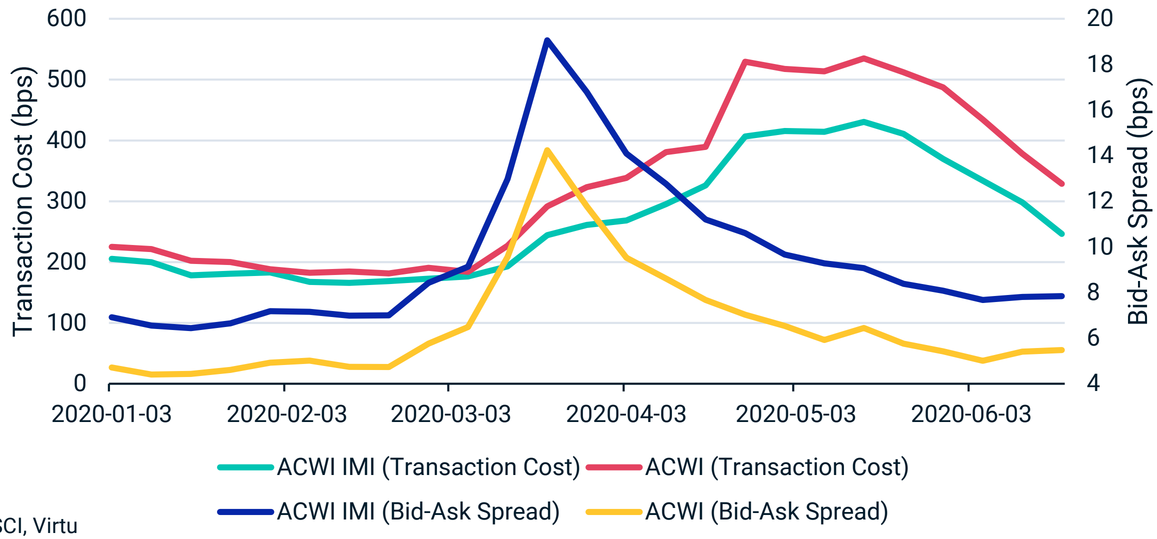
Impact Substantially Rose during Market Stress

Simulated Market Impact of May 2020 SAIR on different dates



*Source: MSCI, Virtu

While we do not see a substantial dislocation in terms of turnover and numbers of additions and deletions during ‘normal’ times, there are noticeable spikes in liquidity and transaction cost* metrics observed during times of market stress

*Transaction costs are based on a model (Virtu) which measures trading costs using the difference between the average execution price and the prevailing price at the start of the order execution. This measure includes both the bid-ask spread as well as the price impact cost of the order. For market impact, Virtu uses a 60 business day historical volatility as main input to liquidity model.

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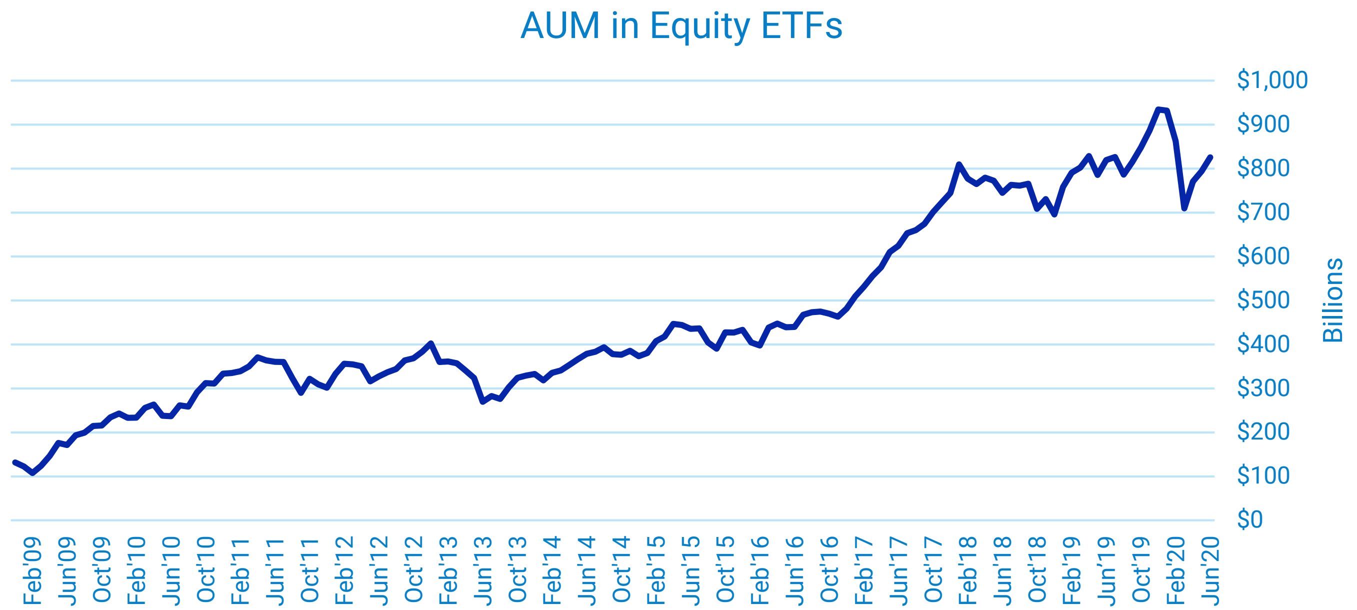
Discussion Points

- Do you agree with the proposal to implement a ‘light’ rebalancing in times of significant market stress?
  - Is it appropriate to apply QIR thresholds in place of SAIR rules for the MSCI GIMI in times of defined market stress?
  - Do you agree with the proposal to apply ‘light’ rebalancing for the Non-Market Cap Weighted Indexes, if QIR is defined by the relevant index methodologies?
  - Is it appropriate to proceed with the normal rebalancing schedule for the Non-Market Cap Weighted Indexes, if a QIR is not defined by the relevant index methodology (i.e. Semi-Annual only)?
  - What is the appropriate advance notice period to inform market participants of moving to a ‘light’ rebalancing?
  - Is the evaluation of market stress through the three dimensions of the MSCI Market Monitoring Framework sufficient ? What other/different measures should potentially be employed?

Appendix

AUM in Equity ETFs linked to MSCI



- AUMs have increased over the past decade

SOURCE https://ir.msci.com/aum-etfs-linked-msci-indexes

[1] For periods prior to April 2019, estimates were based on data from Bloomberg and MSCI.

[2] For April 2019, a) the Month-End Balance is an estimate based on data from Refinitiv and MSCI, b) the Monthly Average Balance is an estimate based on data from Bloomberg and MSCI for the period from April 1 through April 25 and on data from Refinitiv and MSCI for the period from April 26 through April 30; provided that de minimis amounts of AUM for the Month-End Balance and Monthly Average Balance were based on data as of April 25, 2019 from Bloomberg.

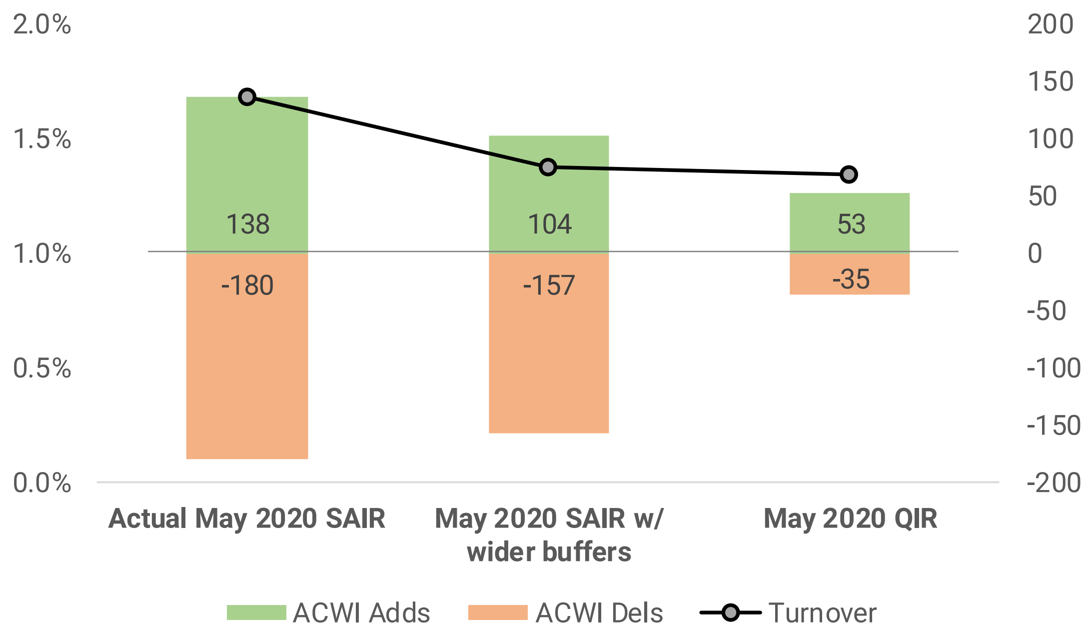
[3] For May 2019 and later months, the Month-End Balance and the Monthly Average Balance are estimates based on data from Refinitiv and MSCI, which may include de minimis amounts of delayed data.

The AUM in Equity ETFs also includes AUM in Exchange Traded Notes, the value of which is less than 1.0% of AUM amounts presented.

Simulated May 2020 SAIR using different thresholds

Simulated May 2020 SAIR using different thresholds

Turnover	1.69%	1.38%	1.34%

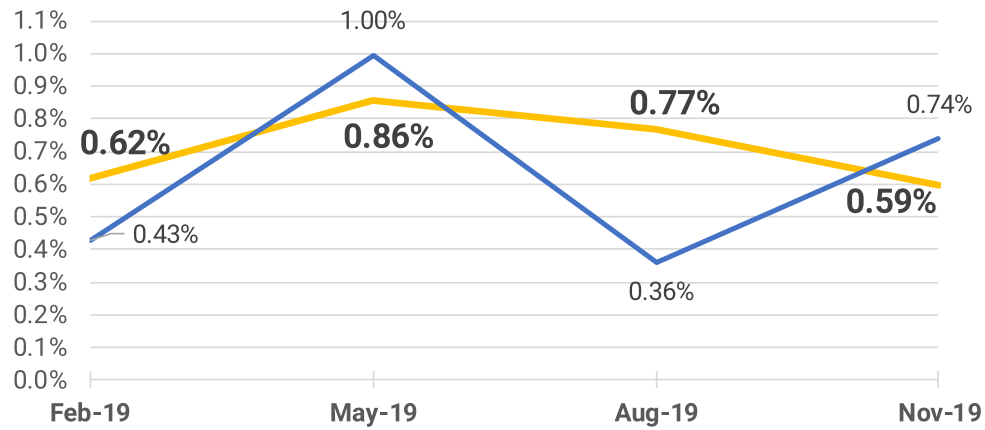


Applying QIR thresholds leads to significantly lower number of index review changes and turnover, including SAIR with widened buffers

Simulated 2019 Index Reviews using SAIR thresholds

- Rebalancing using SAIR rules at each review would even out the quarterly turnovers, but would result in a **slightly higher total annual turnover**

Turnover- MSCI World Index



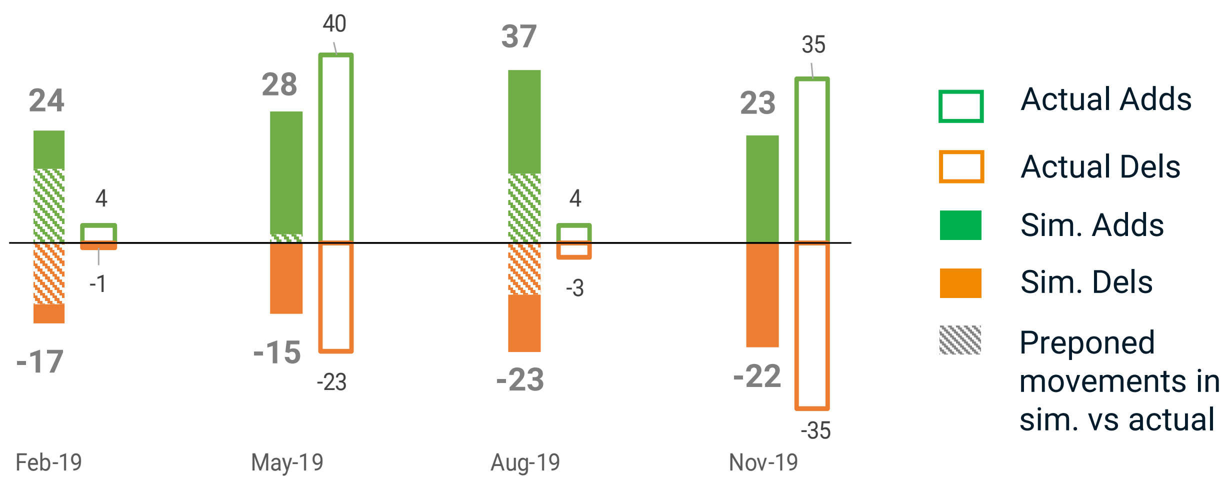
Annual Actual Turnover: **2.52%**

Annual Sim. Turnover: **2.84%**

- This would result in preponing some SAIR movements to the previous QIR (i.e. **more timely market representation**)

- The full-year 2019 simulation did not result in reverse turnovers

Index Movements- MSCI World Index



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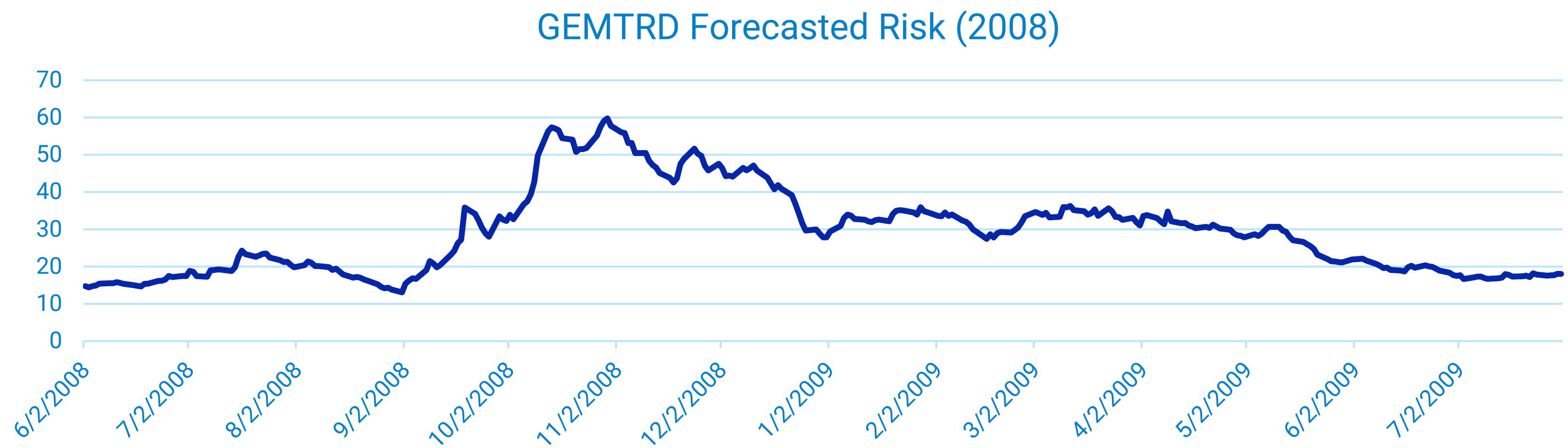
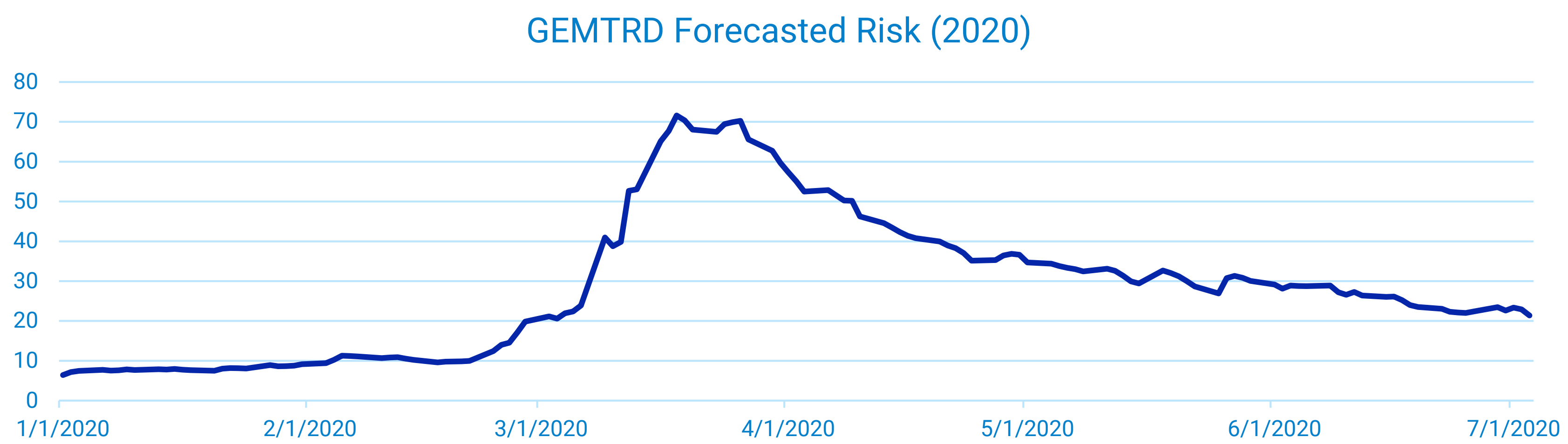
GEMTRD Forecasted Risk





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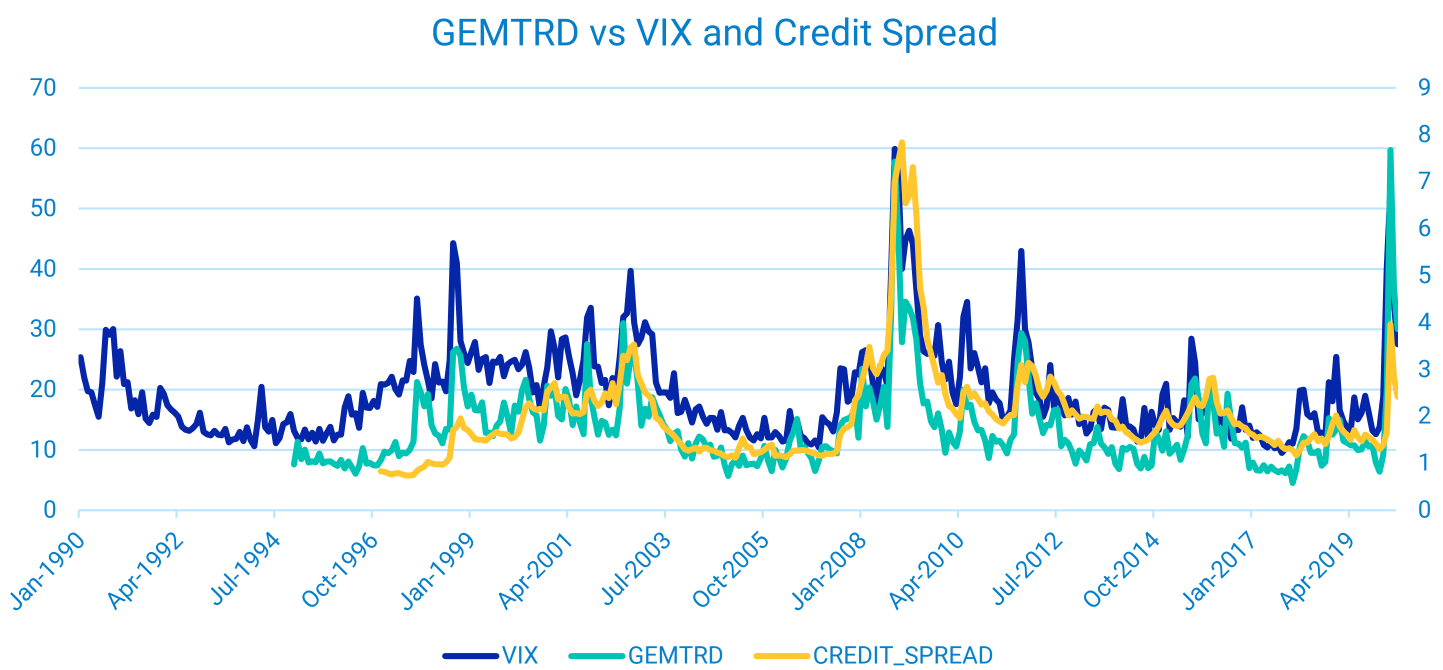
GEMTRD Forecasted Risk

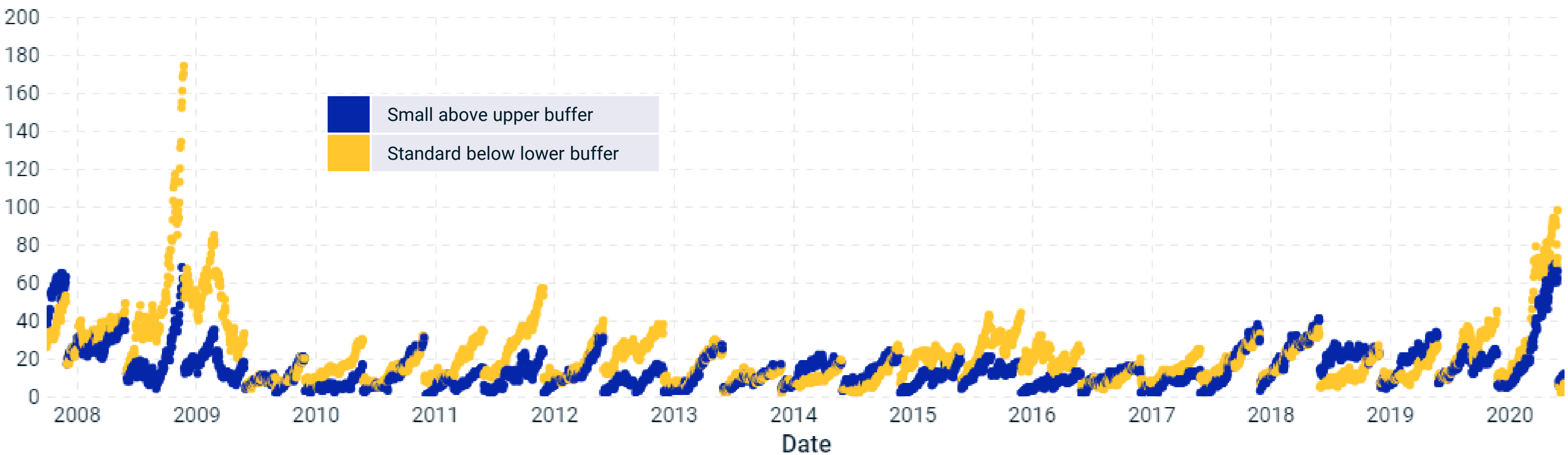
- The GEMTRD Forecasted Risk exhibit high correlation with other indicators such as VIX (0.88) and Credit Spread (0.72)



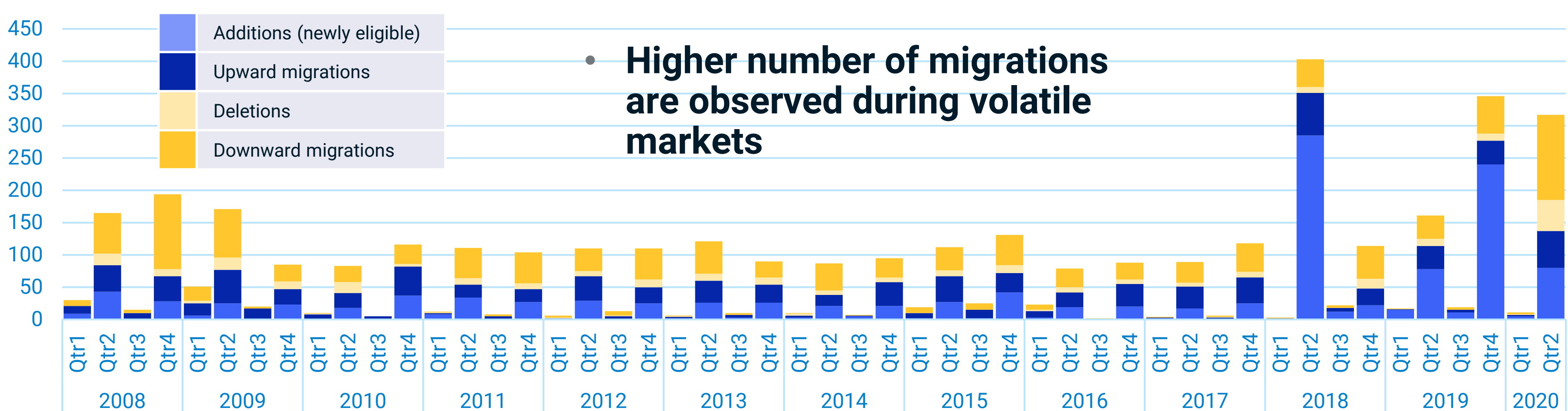
*Source: MSCI, Chicago Board Options Exchange (CBOE) Volatility Index, ICE BofAML Fixed Income indices

Historical number of index review changes

Number of ACWI securities in Buffer Zones (SAIR buffers)

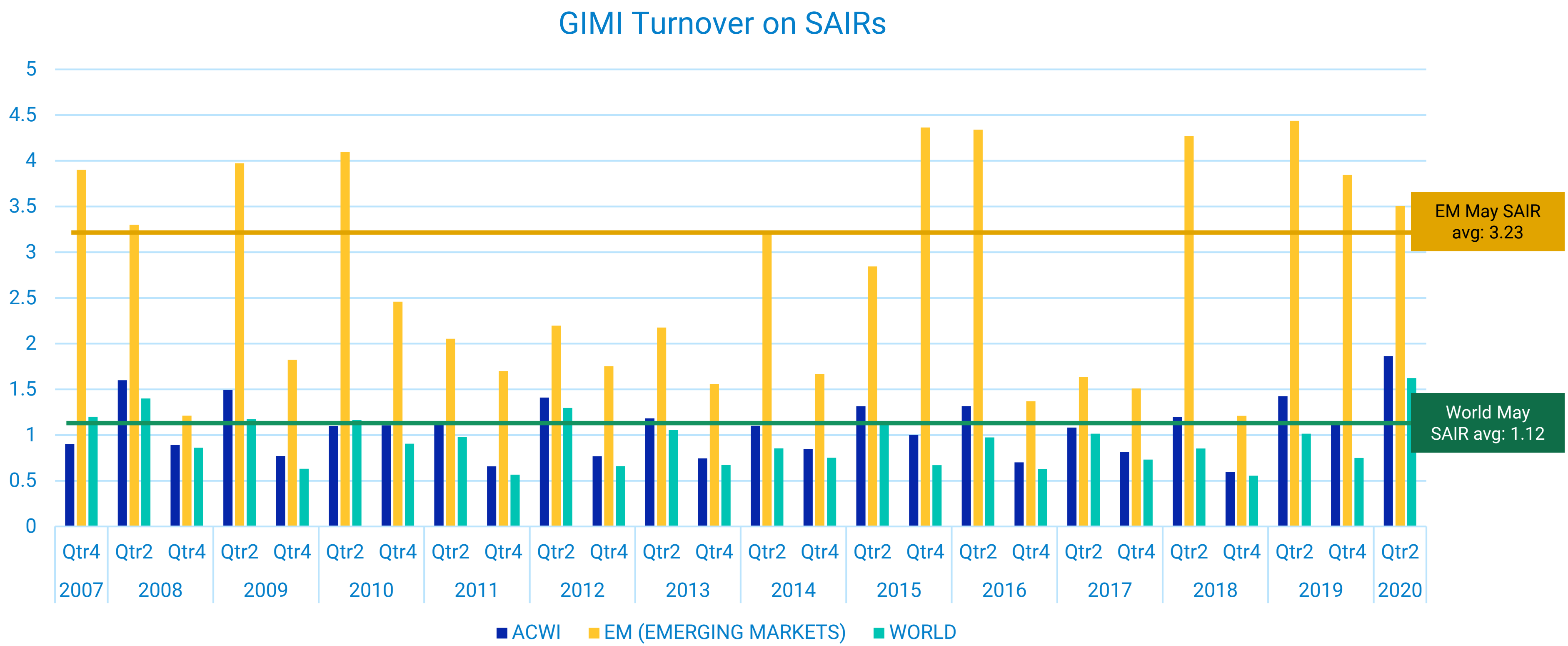


Historical Breakdown of ACWI Add-Deletes



- **Higher number of migrations are observed during volatile markets**

Historical Index Turnover



- The turnover at the ACWI level generally remained stable since the inception of the GIMI
  - Some increase was observed as part of the May 2008 and May 2020 SAIRs, where volatility is higher

*Turnover for Q4 2007 and Q2 2008 are based on the turnovers calculated for provisional indexes at the time of the methodology transition MSCI Standard Indexes Methodology to MSCI GIMI Methodology

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