



Jason Xu
+1 212 526 6782
jason.xu@barclays.com
BCI, US

Exploring Cross-Market Signals

Do Dividend Cuts Affect Bond Performance?

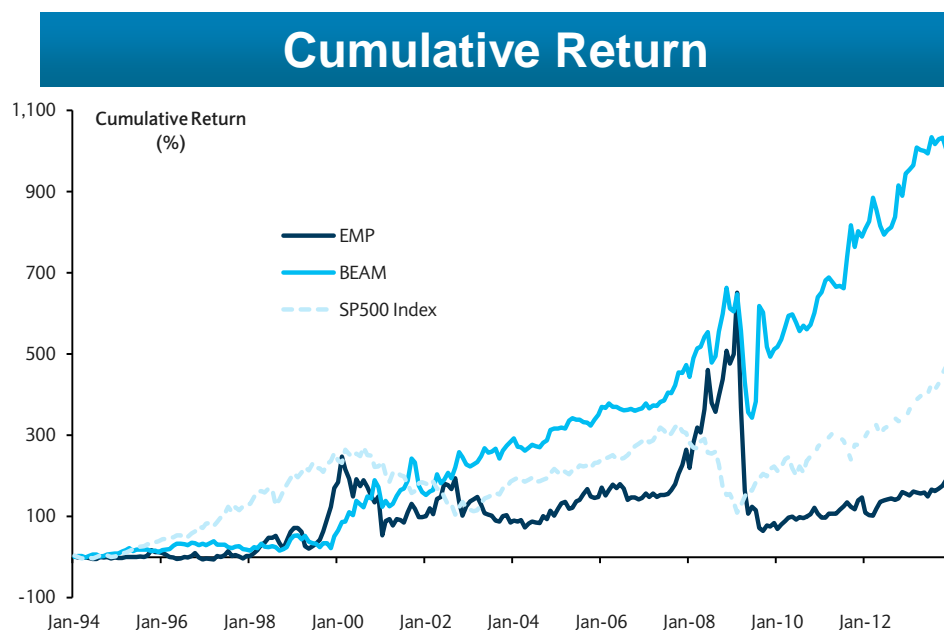
June 2015

Cross-Market Signals

❑ This study is part of our ongoing effort to explore cross-market signals

❑ Example: **BEAM** (Bond in Equity Asset Momentum)

- Provide investors an enhancement to traditional equity momentum: bond returns over a short window are used to create relative value signals for equities
- Improvement was especially large in market reversal when equity momentum underperforms
- “Long only” portfolio based on bond rankings dominates one using equity rankings



Source: Barclays Research

Performance Statistics					
S&P 500		Capitalization-Weighted		Equal-Weighted	
Long/Short Portfolios (1994-2013)					
		EMP	BEAM	EMP	BEAM
Avg. Ret. (%/m)	0.84	0.86	1.21	0.31	1.45
Volatility (%/m)	4.39	8.89	6.38	8.47	4.32
Inf./Sharpe Ratio (ann.)	0.44	0.33	0.66	0.13	1.16
Correl. with S&P500		-0.30	-0.16	-0.29	-0.19
Long only Portfolios (1994-2013)					
		L-EMP	L-BEAM	L-EMP	L-BEAM
Avg. Ret. (%/m)	0.84	1.29	1.67	1.63	2.17
Volatility (%/m)	4.39	5.83	6.57	6.21	6.70
Sharpe Ratio (ann.)	0.44	0.60	0.74	0.76	0.98
Correl. with SP500		0.71	0.73	0.74	0.77

Motivation

When a company announced changes in its dividend policy, how did its bonds react to the news?

Two opposing effects of dividend policy on bond holders

❑ Signal effect

- Dividend policy reflects the expectation of the management for company fundamentals, and higher dividend means better prospects of the company

❑ Distribution effect

- More cashflow for equity holders means less for bond holders

Methodology

- ❑ We used an event study framework to study the effect of dividend changes on bonds
 - Event – dividend changes
 - Event day – announcement date (day 0, assuming news was announced before market open)
 - Event window – 31-business-day window (i.e., 15 bus. days before and after day 0¹)
 - Sample period – Jan. 1999 – Dec. 2014

- ❑ Company universe
 - Dividend paying companies that had bonds in Barclays US IG or HY universe
 - No ADR, no REITs and no companies which changed dividends frequently²
 - US exchanged listed and primary share class
 - Excluding companies with stale bond spread quotes³

Note: 1, see Appendix for the results for a longer event-window.

2, more than 25% of months. 3, excluding bonds with unique quotes less or equal to 15% of days over two-month window around event day

Data Sources

❑ Equity bond mappings

- Mapping from bond issues (CUSIP) to equity identifier of the parent company of bond issuers (gvkey in COMPUSTAT)
- The linkage was established through several channels (ticker, issuer id, the first 6-digits of CUSIP, proprietary Barclays identifier, etc) and checked for accuracy (textual matching, industry matching, etc)
- The mapping was used in BEAM¹ (Bond in Equity Asset Momentum) and other studies

❑ COMPUSTAT

- **Dividend change announcement date** – COMPUSTAT daily files
- Daily equity returns

❑ POINT

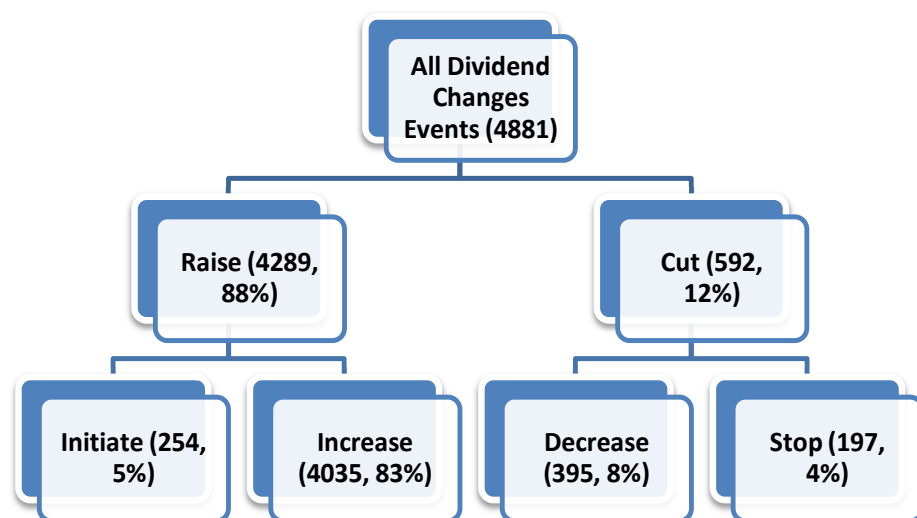
- Bond daily information

Note: 1. Ben Dor, A., and Z. Xu. "BEAM (Bonds in Equity Asset Momentum) - Value of Bond Market Information in Equity Momentum Strategies", Barclays Research June 2014

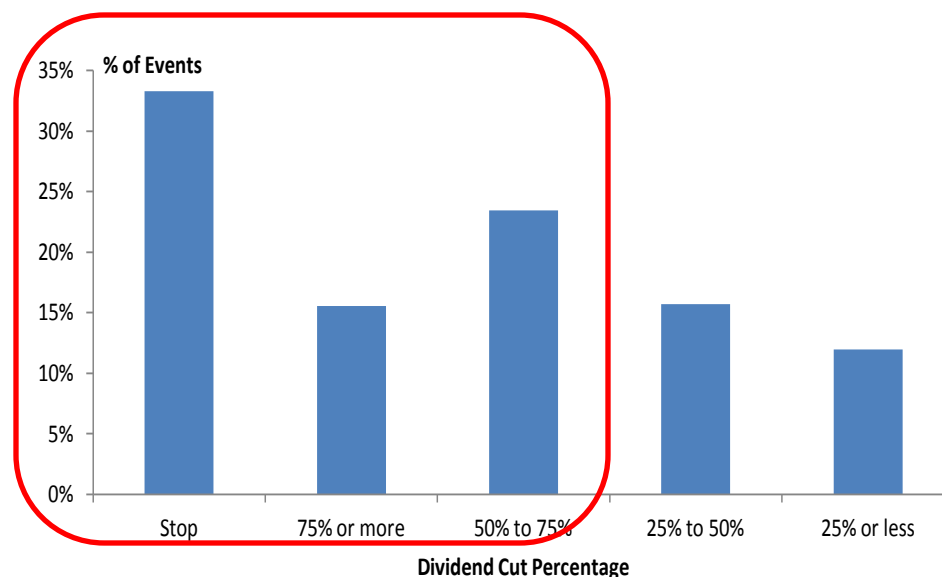
Dividend Events by Type

- ❑ Not surprisingly, 88% of dividend events were dividend raises, while dividend cuts only consist of 12% of dividend events (592 events)
- ❑ Our study focuses on companies that cut their dividends significantly (defined as cutting 50% or more, including those stopped dividends, a total of **428 events**)

Dividend Events by Type



Distribution of Dividend Cuts

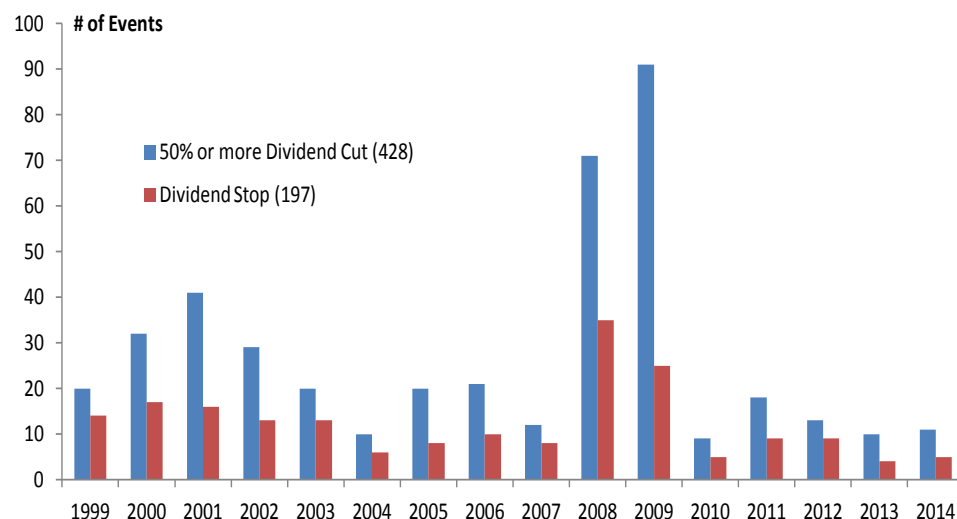


Source: Barclays Research, COMPUSTAT

Dividend Cut Events (50% or More) – Descriptive Statistics

- ❑ Events in which companies cut dividend significantly (50% or more) were somewhat concentrated in the two crisis periods – 2000-02 internet bubble and 2008-09 financial crisis period
 - About 50% ~ 60% of dividend events were from those two crisis periods
- ❑ Those companies were characterized by high OAS, both absolute and relative to peers, an indication of distress

Dividend Cut Events by Year



Descriptive Stat. of Dividend Cut Events

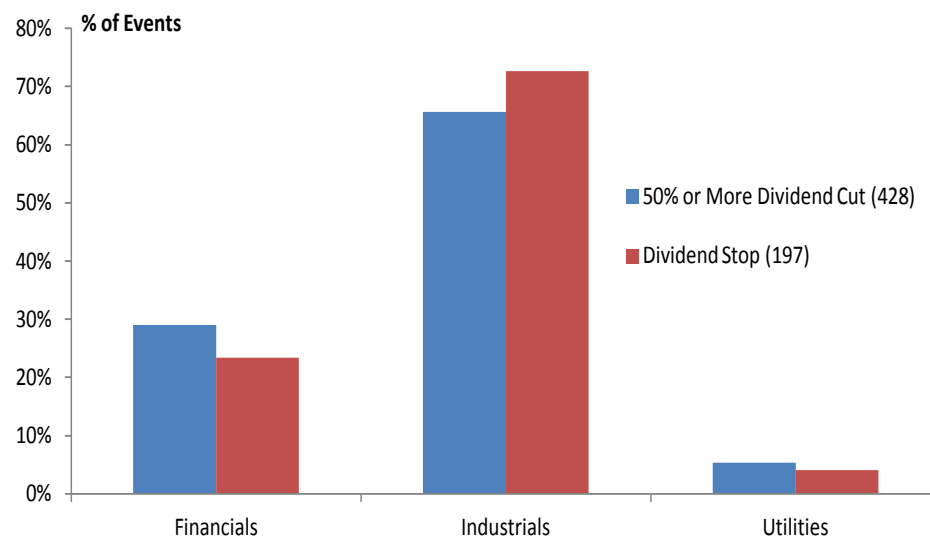
Statistics	OAS (bp)	Relative OAS (over Peers)*	Bond Marke Value (\$b)	Equity Market Value (\$b)
Avg.	693	196	4.25	10.66
Min	50	-1565	0.06	0.02
10 Pct.	124	-80	0.16	0.20
25 Pct.	255	-12	0.31	0.72
Median	523	68	0.95	2.37
75 Pct.	886	274	3.19	8.61
90 Pct.	1477	631	8.92	31.82
Max	5492**	4488	81.75	134.75

Note: *, Relative OAS is the OAS difference between a bond and the market value weighted OAS of bonds with the same credit ratings (notches). **, Federal-Mogul Holdings, a B3 rated company, cut its dividend to zero in May 2001. Source: Barclays Research, COMPUSTAT

Issuer Characteristics – Industry and Rating

- ❑ About 70% of dividend cutting companies were industrials, and the industry composition was similar to Barclays IG+HY index (20%/70%/10%)
- ❑ About 53% of dividend cutting companies (50% or more) were investment grade issuers. However, only 37% of dividend stopping companies were IG issuers, and it reflects their worse fundamentals

Dividend Cut Events by Industry



Dividend Cut Events by Rating

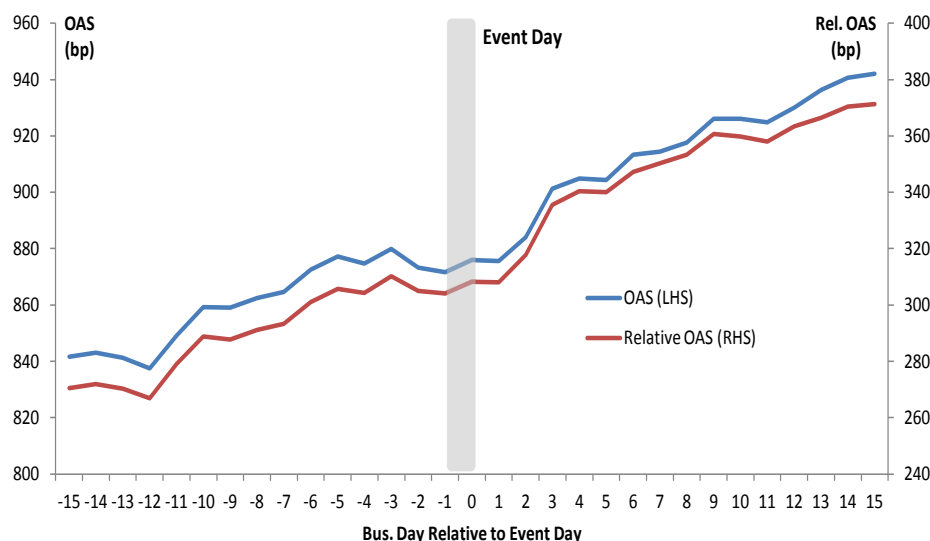


Source: Barclays Research, COMPUSTAT

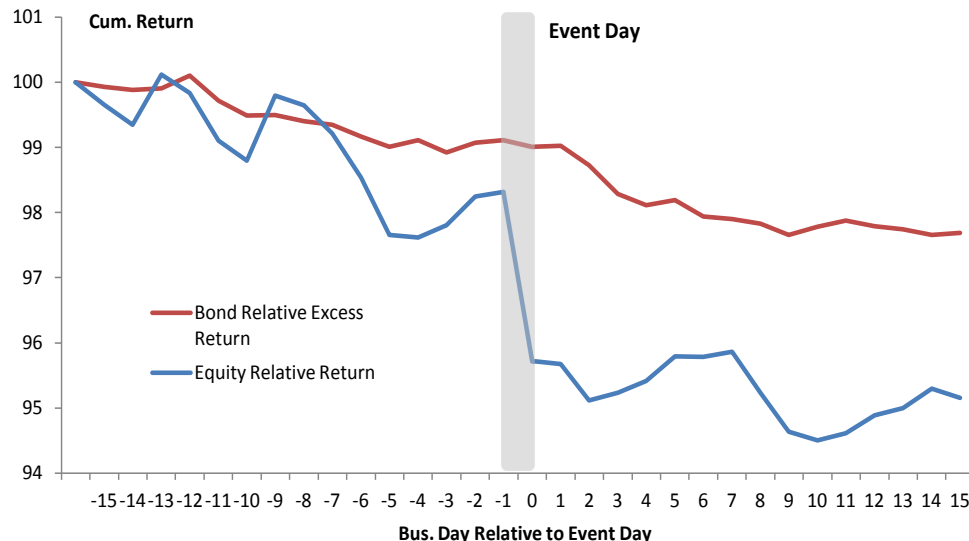
Bond Performance when Companies Stopped Dividend

- ❑ For companies that stopped dividends, OAS widened by about **100bp** over the event window on average, with two-thirds of the widening happening on and after event day
 - Similar results whether OAS was measured as absolute or relative to peers*
- ❑ Over the event window, bonds lost about **2.4%**, while the loss to stocks was doubled
 - Stocks had significant losses (**-2.6%**) on day 0, but bonds had very muted response on day 0 (**-0.2%**)

OAS for Dividend Stop Companies



Cum. Return for Dividend Stop Companies

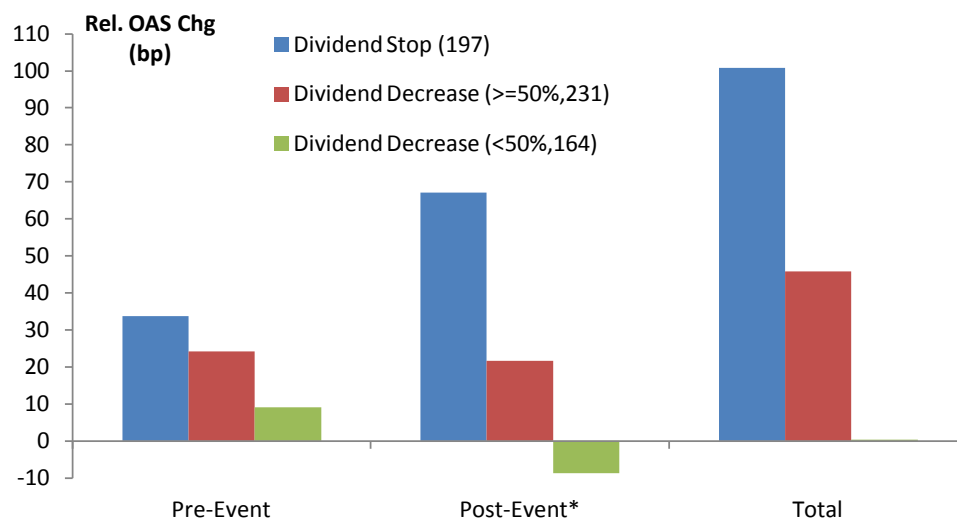


Note: *, Peers are bonds with the same credit rating (notches) and relative OAS is the OAS difference between a bond and the market value weighted OAS of peer bonds. Source: Barclays Research, COMPUSTAT

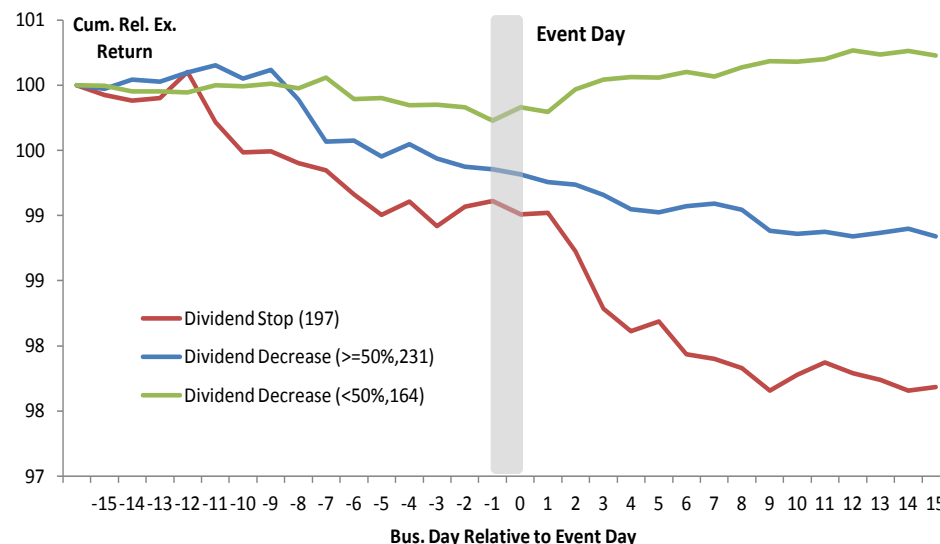
Bond Reactions as Function of Dividend Cut Magnitude

- ❑ Dividend stop represents a quite dramatic type of dividend events, and it is interesting to see how a typical dividend cut events affects bonds, and whether the size of dividend changes affects the bond reaction
- ❑ Bigger cuts in dividend were associated with larger increases in spread and worse performance
 - Spread was unchanged for smaller dividend cut events (<50%), and the initial widening prior to the event was reversed afterward

OAS Changes by Cut Magnitude



Ex. Return by Cut Magnitude



Note: *, post-event includes day 0, event day. Source: Barclays Research, COMPUSTAT

Dividend Cut Events (50% or More) - Weekly Changes

- ❑ As shown in the weekly results, the majority of spread widening and losses in excess return happened after the event day
- ❑ Effect of dividend news decayed over time
 - Rel. OAS increased by 24bp in week 1 (day 0 to day 5), while it only increased by 8bp in third week after the event day

Weekly OAS Changes				
	OAS Change		Relative OAS Change	
	bp	% of Beg. OAS	bp	% of Beg. OAS
Pre-Event (day-15 to -1)	25	3.7%	29	14.6%
Week 1 (day 0-5)	22	3.1%	24	10.5%
Week 2	12	1.6%	11	4.6%
Week 3	10	1.3%	8	2.9%
Total	69	10.0%	71	36.3%

Weekly Bond and Equity Return				
	Bond Return		Equity Return	
	Ex. Return	Rel. Ex. Return	Equity Return	Rel. Equity Return
Pre-Event (day-15 to -1)	-0.59	-0.76	-2.35	-2.01
Week 1 (day 0-5)	-0.58	-0.61	-2.13	-2.00
Week 2	-0.31	-0.28	0.38	0.10
Week 3	-0.13	-0.05	1.10	1.19
Total	-1.61	-1.69	-3.01	-2.74

Note: Relative OAS is the OAS difference between a bond and market value weighted OAS of bonds with the same credit ratings (notches). Source: Barclays Research, COMPUSTAT

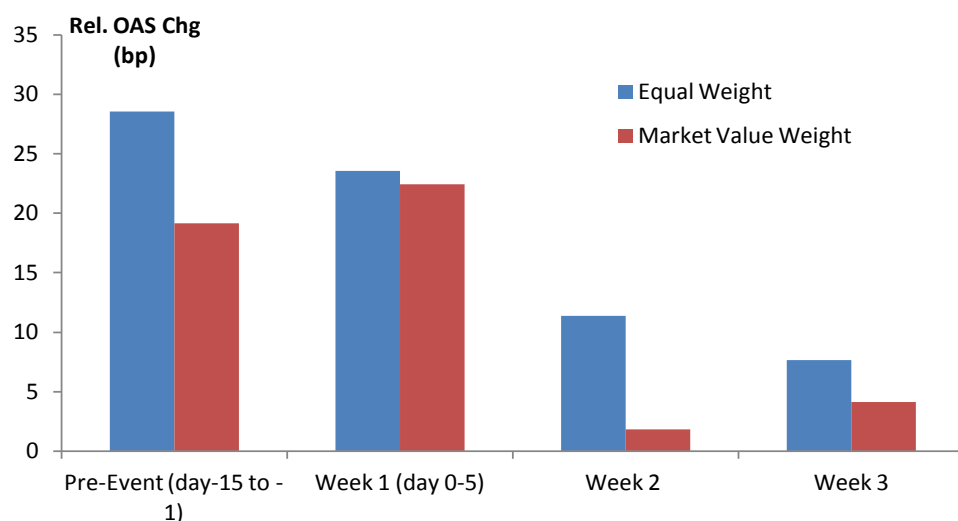
Equal Weight vs. Market Value Weight

❑ Previous results equally weighted all issuers and may bias towards smaller issuers

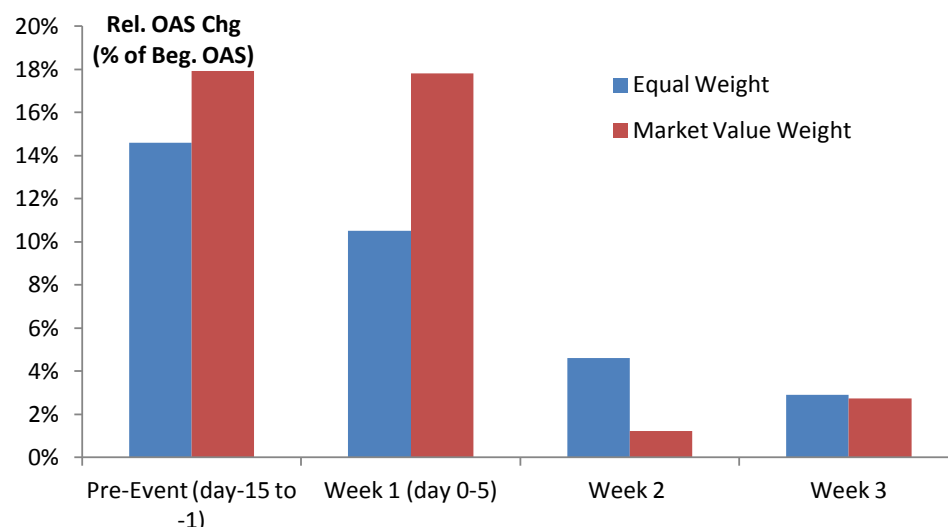
❑ Equal weight vs. bond market value weight*

- MV weighted spread changes exhibited faster decay
- Over the event window, MV weighted relative OAS increased by 48bp (vs. 71bp for eq. weighted) and the 28bp increase happened since event day
- When measured as % chg. over the beg. OAS, the widening in MV weighted OAS was similar to the equal weight results

OAS Changes in bp



OAS Changes as % of Beg. OAS



Note*: bond market values of issuers were capped at \$10billion, and the cap was binding for about 10% of events. MV weighted results without cap are similar. Source: Barclays Research, COMPUSTAT

Effects of Liquidity on Spread Change Dynamics

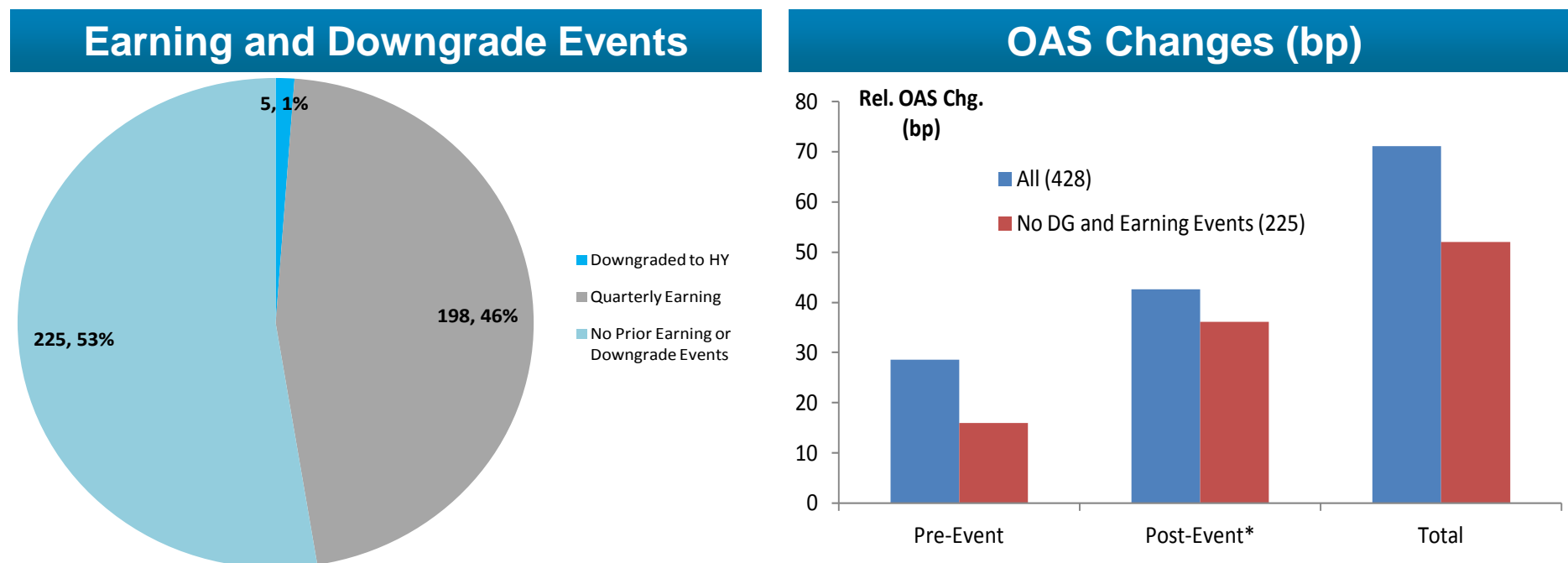
- ❑ The pattern of the continuation of spread widening may be an indication of illiquid markets, and investors may not be able to act on the widening
 - More liquid issuers should have larger proportions of spread widening in earlier days
- ❑ Sort all events by liquidity proxy, **issuer size** (indirect) or **LCS** (direct, only available since 2007), into two groups, and examine their spread dynamics
 - A more liquid group had somewhat larger reactions on day 0, especially for low LCS group (29% of widening happened on day 0 vs. 11%)
 - Nonetheless, both group exhibited largely similar patterns in spread changes

Effect of Liquidity on Spread Change Dynamics				
Sorting Variable	Issuer Market Value (mm)		Liquidity Cost Score (%)	
	Small	Large	Low LCS	High LCS
Median	313	3,225	1.55	5.57
# of Events	214	214	117	117
Beginning Rel. OAS*	280	118	60	307
Pre-event OAS Chg.	31	27	11	42
Post-event OAS chg.	53	33	14	93
Day 0 OAS chg	4	4	4	10
as % of total post-event chg.	8%	11%	29%	11%
Day 0 - 5 OAS chg	26	22	8	46
as % of total post-event chg.	49%	68%	57%	50%

Note: *, post-event includes day 0, event day. Source: Barclays Research, COMPUSTAT

Excluding Prior Downgrade and Earning Events

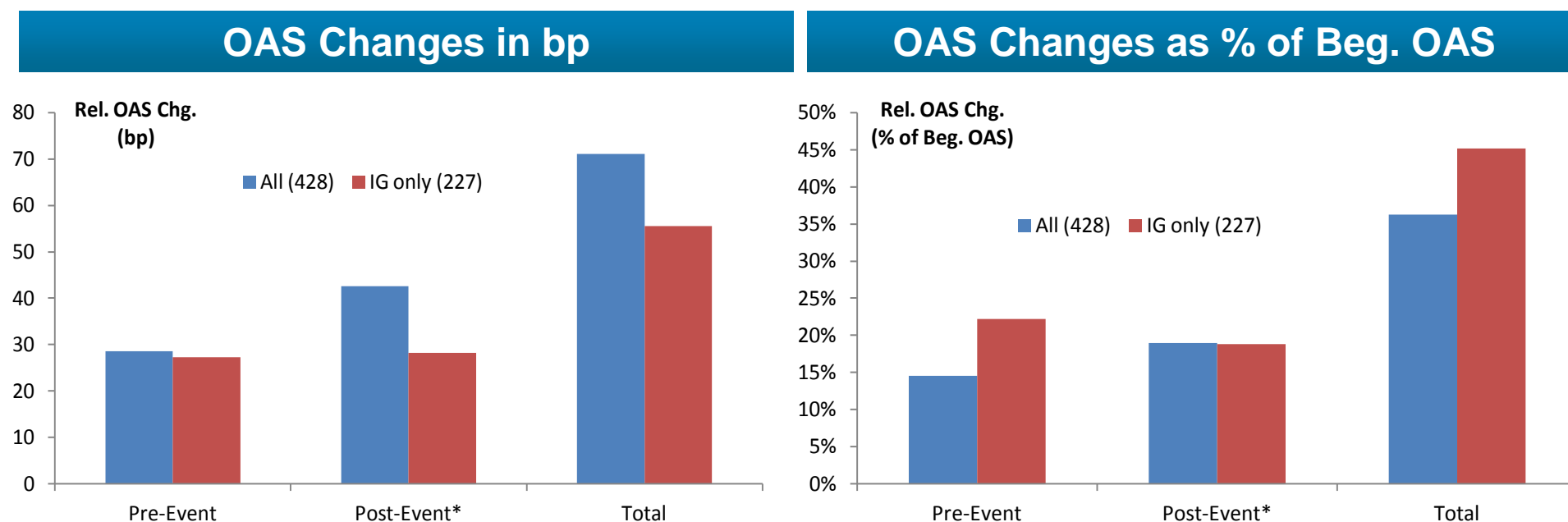
- ❑ Post-event spread widening may be due to the joint effect of other corporate events (i.e., bad earnings) and illiquid corp. markets
- ❑ Excluding companies that had **earning or downgrade** (from IG to HY) events **prior or on** the event day (day -15 to day 0, **225** events remaining)
 - For the no-prior-events group, spread widened by about 52bp (36bp since event day) vs. 71bp (43bp) for using all events



Note: *, post-event includes day 0, event day. Source: Barclays Research, COMPUSTAT

Investment Grade Companies Only Events

- ❑ Companies downgraded to HY experienced price pressure and the effect could last much longer than our event window. Thus, excluding DG events over the event window may not be enough
- ❑ Only use companies that rated as IG when dividend news were announced (**227**)
 - Spread widened less as measured in bp (56bp and 28bp since event day), but was similar in magnitude when measured as % of changes of beginning OAS

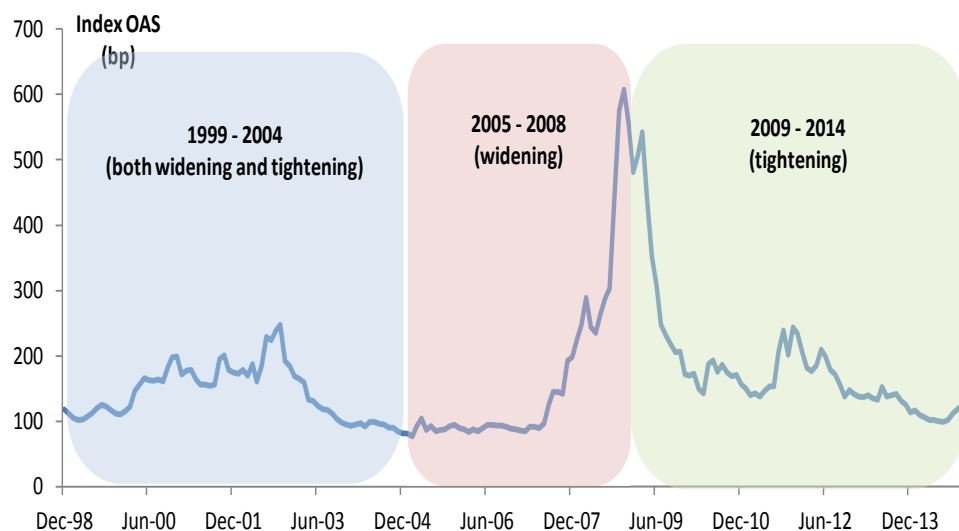


Note: *, post-event includes day 0, event day. Source: Barclays Research, COMPUSTAT

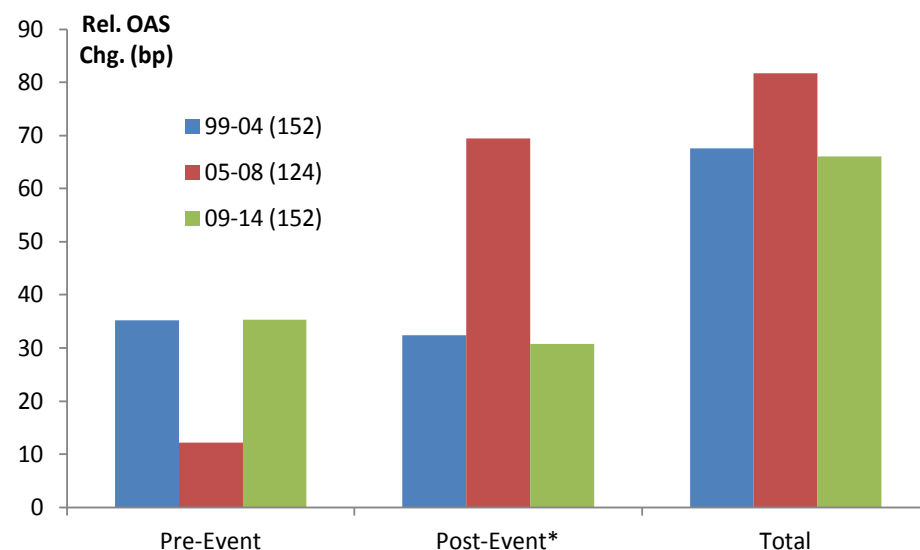
Results for Different Sample Periods

- ❑ Full sample (1990-2014) was separated into three sub-samples which represent different market dynamics
 - 99-04 (both widening and tightening); 05-08 (widening) and 09-14 (tightening)
- ❑ In all three sub-samples, spread widened significantly, and the increase was the largest in the 05-08 period (**82bp**) and smallest in 09-14 period (**66bp**)
 - In the 05-08 period, 85% of spread widening happened since event day, while only about half of widening happened since event day for other periods

Barclays Corp. IG Index OAS



OAS Changes (bp) by Sub-Samples



Note: *, post-event includes day 0, event day. Source: Barclays Research, COMPUSTAT

Alternative Measure of Dividend Change Size

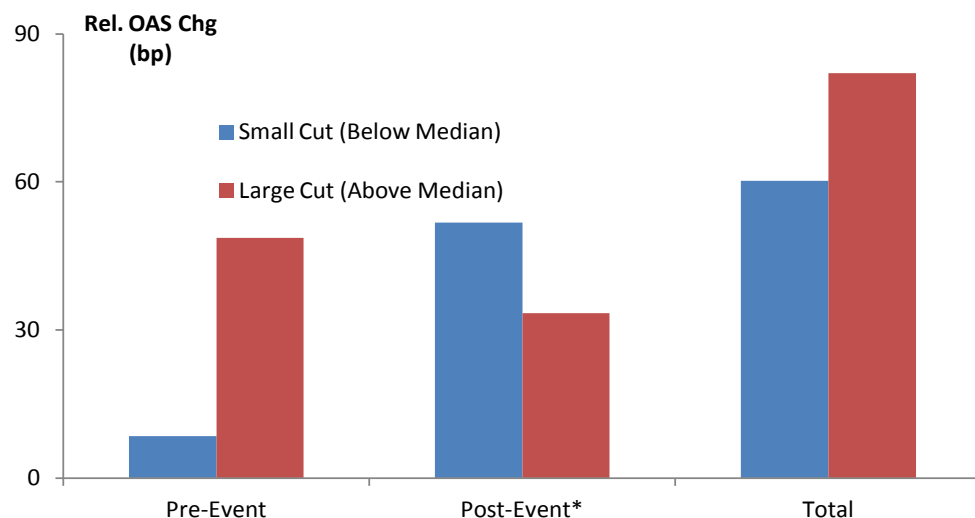
- ❑ Percentage changes in dividend may not fully capture the size of dividend cuts.
 - Dividend stop events were all 100% cut, and percentage cut may treat different dollar amount events the same

- ❑ We use the ratio of **dividend changes in dollar term** (dividend changes per share*shares outstanding) and **bond market values**, as an alternative measure of dividend cut size
 - The ratio measures the cash amount saved/spent to debt value

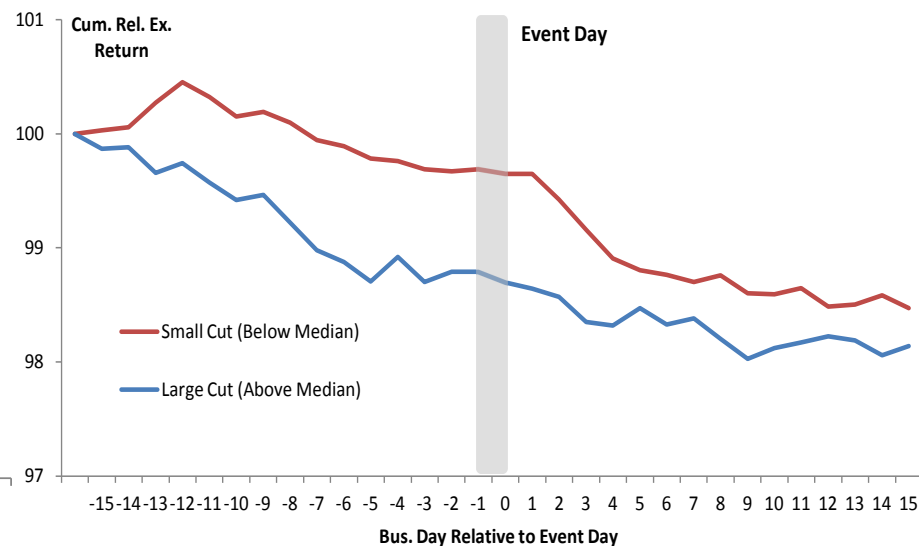
Effect of Dividend Change Size

- ❑ Over the event window, the group with larger cuts in dividends experienced bigger increases in spread on average.
 - OAS increased by 82bp for the large cut group vs. 60bp for the small cut group
- ❑ However, the spread change pattern was very different for the two groups
 - The group with smaller cuts was seen as a “surprise” by bond holders as most of spread widening happened post-event, and this is in contrast with that of the larger cut group

OAS Changes by Cut Magnitude



Cum. Ex. Return by Cut Magnitude



Note: *, post-event includes day 0, event day. Source: Barclays Research, COMPUSTAT

Dividend Raise Events

- ❑ What happened when companies announced dividend raise?
- ❑ All dividend raise events were sorted by the size of dividend change (the ratio of dollar change in dividend divided by bond market value) to **four quartiles**
- ❑ For dividend raise events (4289), bond holders viewed them as non-events, which implies that positive signal effect was offset by the negative distribution effect

OAS Changes by Dividend Raise Events				
Quartile	Median Dividend Chg	Relative OAS Change (bp)		
	4289 events	Pre-event	Post-event*	Total
1	0.2%	0.3	-0.9	-0.6
2	0.7%	0.3	-1.4	-1.1
3	1.6%	0.7	-0.7	0.1
4	5.3%	1.6	-0.9	0.6

Note: *, post-event includes day 0, event day. Source: Barclays Research, COMPUSTAT

Conclusions

- ❑ Dividend cuts (50% or more) were typically viewed by bond holders as negative events, and the OAS of those companies widened by 71bp on average over a short window around the announcement date
 - 60% of the spread widening happened on and after the event day

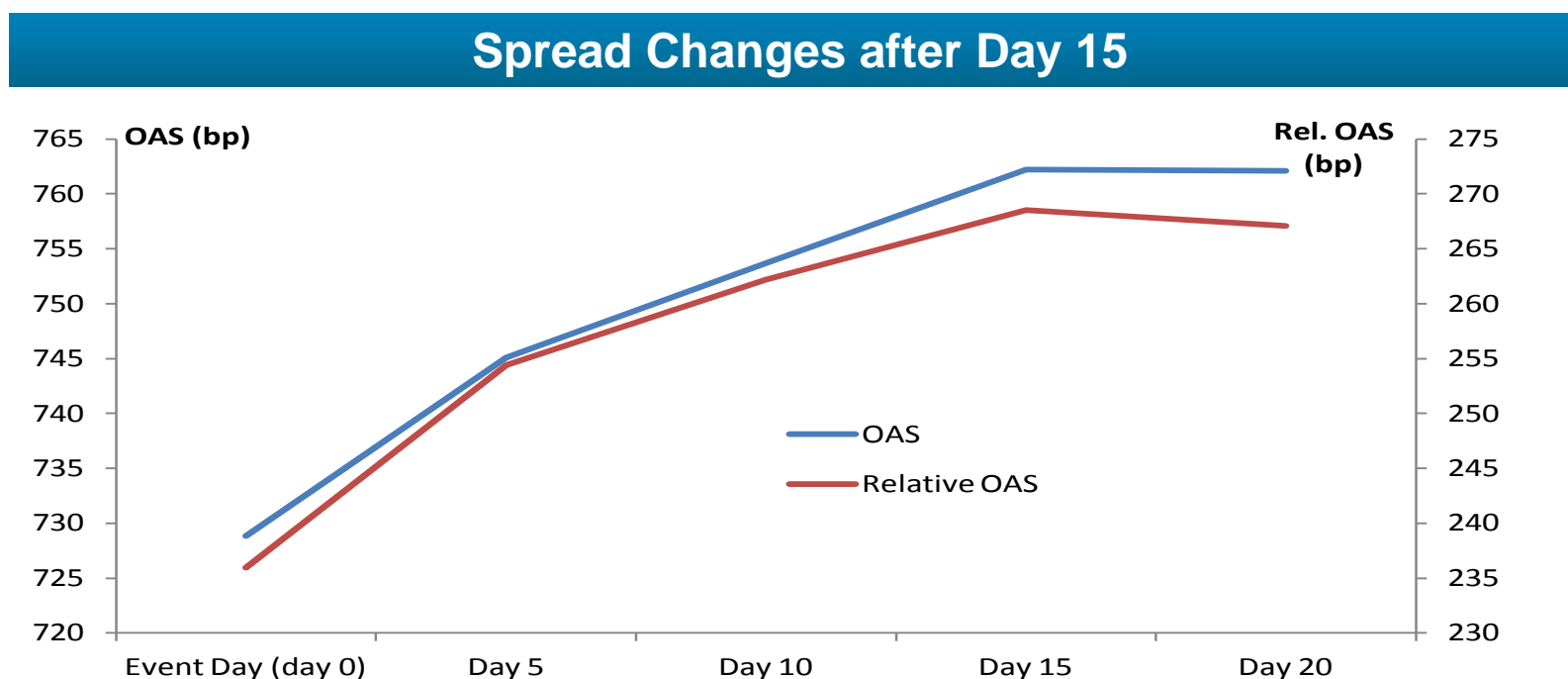
- ❑ The continuation of widening in spread was not entirely driven by bond liquidity, and our results are robust to the following factors: 1) how issuers are weighted in the group (equal weight vs. market value weight); 2) excluding prior downgrade and earning events; 3) restricted to IG issuers; 4) different sample periods

- ❑ Historically, dividend raise events were typically viewed as non-events as the spread changes around event day were insignificant

Appendix

Longer Event Window

- ❑ A longer event window will reduce the number of events because we require the event has non-missing data across the event window.
 - Expanding the window from (day -15 to day 15) to (day -20 to day 20) reduces the number of dividend stop events from 428 to 411
- ❑ Spread started to flatten after day 15



Source: Barclays Research, COMPUSTAT

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