From Active and Passive Management – What Do We Learn (about institutional trading activity) ?

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Motivation

- *Research related to stock market efficiency and anomalies*
- *Three possible explanations in the literature*
  1) *statistical bias*
  2) *compensation for risk*
  3) *mispricing*

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  1) statistical bias

  2) compensation for risk

  3) mispricing

*Cochrane (1999) discusses **investor reactions***

(Case 2) -> no trading and persistence

(Case 3) -> trading and opportunities vanish

Motivation

- *Role of institutional investors ?*

  1) *Holding data (Lewellen, 2011): Institutional **as a whole** do not act as arbitrageurs*

  2) *Flow data (Akbas et al., 2015): Mutual Fund (MF) flows exacerbate anomaly mispricing, where Hedge Fund (HF) flows attenuate mispricing*

  3) *Trading data (Calluzo et al., 2019): Increase in anomaly-based trading **when information is available through academic publication –** effective role of institutional investors in the arbitrage process and in improving market efficiency*

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*Identification strategy : **Journal publication as a shock** that increases knowledge of anomalies (McLean and Pontiff, 2016)*

Question: Do we observe a rise in anomaly-based trading that contributes to an attenuation of anomalies profits ?

Motivation

- *Principal limitations of this approach*

  1) *Conflicting findings in the literature on whether practitioners learn from academic research (Richardson et al., 2010)*

  2) *Access to the technology/accounting data necessary to implement the anomaly trading (Calluzo et al., 2019)*

  3) *Proxy for institutional investor trading activity through SEC Form 13F (quarterly report, $100 in AUM, long equity holdings)*

  4) *Exogeneity of the shock used in the identification scheme – Could academic publication be a consequence of the decay in anomaly returns ?*

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To solve these 3 issues, we use an alternative identification scheme based on a different shock : the availability of an anomaly-based trading strategy as an index promoted by banks (Jorion, 2021)

Bank Risk Premia (BRP) Market

- *Alternative Risk Premia products are initially designed to provide low-cost exposures to long-short Risk Premia embedded in HF returns*
- *Some of these products are proposed to investors in the form of bank-provided Total Return Swap (TRS)*
- *This market has expanded rapidly (Jorion, 2021)*

Table 1. Size of the Risk Premia Market

	Equities	Rates	Credit	Currencies	Commodities	Multiasset	Total
Notional amount invested ($ billions)							
Banks	$131	$40	$6	$17	$88	$78	$360
Asset managers	$181	$43	$20	$5	$9	$86	$344
HFR bank indexes							
Number of products	591	97	42	82	249	64	1,125

Notes: The top rows show the market size estimated by Albourne (2020) as of December 2019. The market is split between bank products and asset managers. The bottom row reports the number of bank products in each asset class index, as reported by Hedge Fund Research in 2018. In comparison, LuxHedge reported that the alternative UCITS market has approximately 1,400 funds with a total of $430 billion in assets under management.

Bank Risk Premia (BRP) Market

- *Bank ARP products are strategies in which both the trading algorithm and the execution are outsourced to the bank*
  1) *The trading strategy must be precisely defined in a "rule book"*
  2) *Valuation is carried out using closing prices and applying fixed prespecified transaction costs*
  3) *Such a process leads to time series of daily TRS prices used for entering and exiting the product daily*

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Slide 7: *Principal limitations of the approach*

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Bank Risk Premia (BRP) Market

- *BRP data on several strategies are manually collected (9 banks)*

  1) *We observe for each product the index inception date / different from the history (backtest) start date*

  2) *For a given strategy, we count each month the number of products available on the market and defined an **average index inception** for the strategy*

  3) *When a strategy is available as an index, we expect to measure a **significant decreased** of its explanatory power of actively managed returns*

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3) *When a strategy is available as an index, we expect to measure a **significant decreased** of its explanatory power of actively managed returns*

*New identification strategy : **Index inception as a shock** that increases availability of anomalies*

Research Questions

QUESTION 1: *Can we infer from Bank Risk Premia (BRP) products (passive management) any insights about the strategies implemented by Hedge Funds (active management)?*

Do we observe a decrease in anomaly-based trading when the strategy is available through an index ?

QUESTION 2: *Do we observe some differences between in the strategies implemented by sophisticated (Hedge Funds) and less sophisticated (Mutual Funds) institutional investors ?*

Data

On the passive side

- *Daily returns of 221 ARP products provided by 9 banks classified in 7 strategies*
- *For each product,* ***backtest and live daily returns*** *are available*
- *Backtest data are only used from January 2010*
- *The empirical study ends in May 2017*

Live date distribution of the constituent ARP's.

Style	Min	Q1	Median	Mean	Q3	Max	N/A's	ARP Count
Low Risk	2013-03-01	2014-03-04	2015-10-16	2015-05-27	2016-01-14	2017-08-01	2	20
Momemtum	2005-04-01	2014-06-24	2015-06-11	2014-07-14	2015-12-10	2017-11-24	2	29
Quality	2013-03-01	2015-01-20	2015-10-16	2015-07-26	2015-12-25	2017-08-01	1	16
Value	2007-03-01	2014-07-20	2015-09-13	2014-11-21	2016-06-27	2017-11-24	2	34
Short Volatility	2007-06-01	2014-06-20	2015-07-23	2015-06-28	2016-09-19	2018-02-19	1	102
Mean Reversion	2011-01-05	2013-07-18	2015-01-19	2014-11-05	2016-10-03	2019-10-13	0	15
Trend	2009-05-01	2009-11-02	2014-03-27	2012-12-07	2015-03-31	2016-01-13	0	5

Data

On the active side (set 1)

- *Monthly returns of Hedge Funds reporting to the HFR database*
- *Focus on the Equity Hedge strategy (and sub strategies : Fundamental Value, Fundamental Growth, Equity Market Neutral)*

SUB_STRATEGY	Fund Count
Fundamental Value	3179
Fundamental Growth	2198
Equity Market Neutral	1213
Quantitative Directional	585
Multi-Strategy	560
Sector - Energy/Basic Materials	343
Sector - Technology	299
Sector - Healthcare	251
Short Bias	86

Data

On the active side (set 2)

- *Monthly returns of Mutual Fund reporting to the Morningstar database*
- *7700 mutual funds*
- *Focus on the Equity strategy (and sub strategies: Growth, Value)*

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3) ~~*Proxy for institutional investor trading activity through SEC Form 13F (quarterly report, $100 in AUM, long equity holdings)*~~

I. Regression model with Hedge Funds

$$Return_{i,t} = \alpha_0 Premium\_Live_t + \beta_1 Premium_t + \beta_2 Premium\_Live_t * Premium_t + \beta_3 Market_t + \epsilon_{i,t} \quad (1)$$

where $Return_{i,t}$ is the exchange-rate adjusted performance for fund i in month t, $Premium\_Live_t$ is a dummy variable that is 1 if t is later than the live (inception) date of $Premium$, and $Market_t$ is the return on the CRSP value-weighted US equity market index.

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- *Where are investment ideas coming from? Active management?*

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- *Are they still played by active managers when passive products are launched?*

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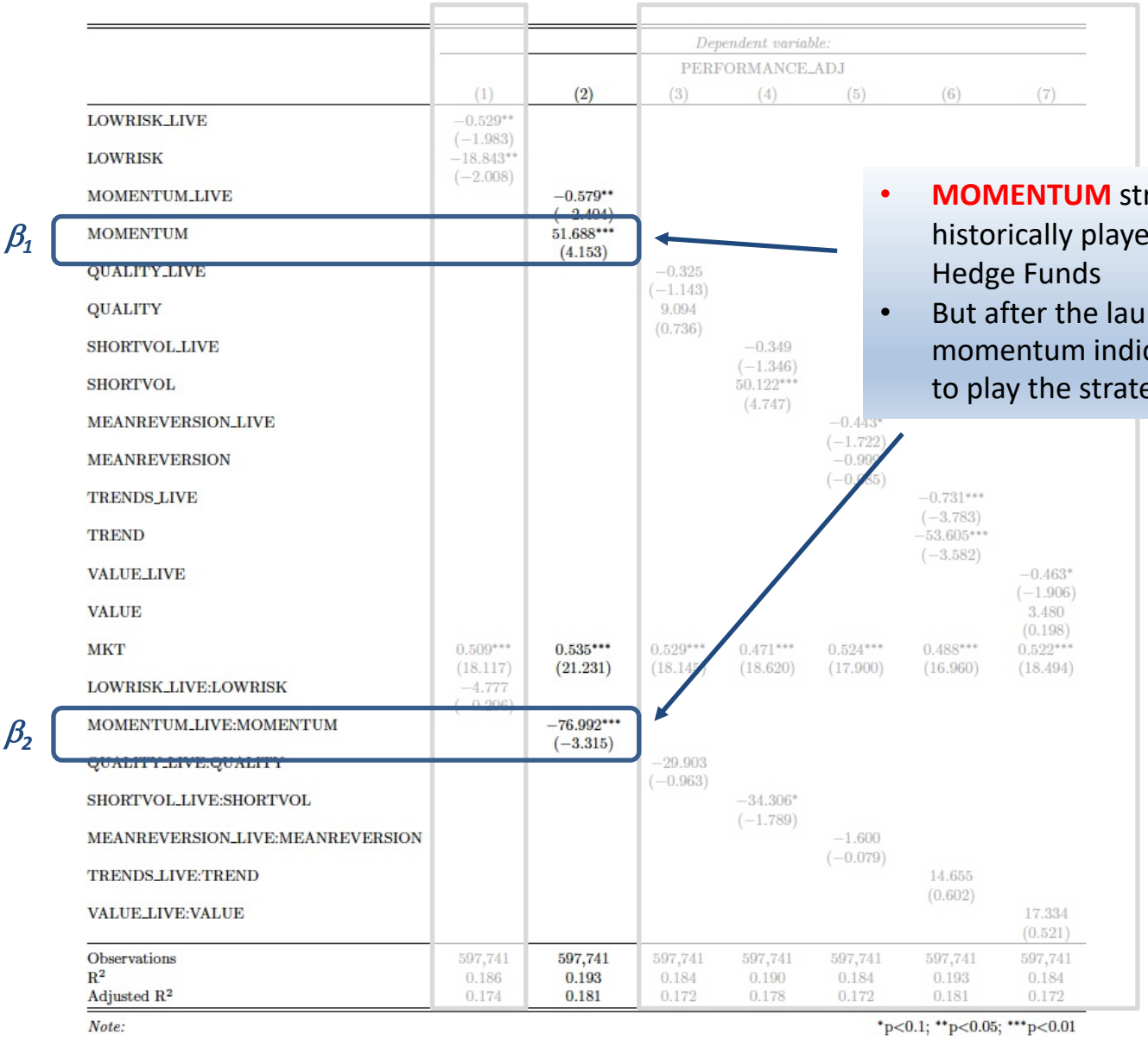
- *Where are investment ideas coming from? Active management?*

β_1 *coefficient in the regression*

- *Are they still played by active managers when passive products are launched?*

β_2 *coefficient in the regression*

1st Result – MOMENTUM & Equity Hedge



	Dependent variable: PERFORMANCE_ADJ						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
LOWRISK_LIVE	−0.529** (−1.983)						
LOWRISK	−18.843** (−2.008)						
MOMENTUM_LIVE		−0.579** (−2.494)					
β_1 MOMENTUM		51.688*** (4.153)					
QUALITY_LIVE			−0.325 (−1.143)				
QUALITY			9.094 (0.736)				
SHORTVOL_LIVE				−0.349 (−1.346)			
SHORTVOL				50.122*** (4.747)			
MEANREVERSION_LIVE					−0.443* (−1.722)		
MEANREVERSION					−0.99 (−0.[illegible]5)		
TRENDS_LIVE						−0.731*** (−3.783)	
TREND						−53.605*** (−3.582)	
VALUE_LIVE							−0.463* (−1.906)
VALUE							3.480 (0.198)
MKT	0.509*** (18.117)	0.535*** (21.231)	0.529*** (18.14[illegible])	0.471*** (18.620)	0.524*** (17.900)	0.488*** (16.960)	0.522*** (18.494)
LOWRISK_LIVE:LOWRISK	−4.777 (−0.206)						
β_2 MOMENTUM_LIVE:MOMENTUM		−76.992*** (−3.315)					
QUALITY_LIVE:QUALITY			−29.903 (−0.963)				
SHORTVOL_LIVE:SHORTVOL				−34.306* (−1.789)			
MEANREVERSION_LIVE:MEANREVERSION					−1.600 (−0.079)		
TRENDS_LIVE:TREND						14.655 (0.602)	
VALUE_LIVE:VALUE							17.334 (0.521)
Observations	597,741	597,741	597,741	597,741	597,741	597,741	597,741
R^2	0.186	0.193	0.184	0.190	0.184	0.193	0.184
Adjusted R^2	0.174	0.181	0.172	0.178	0.172	0.181	0.172
Note:							*p<0.1; **p<0.05; ***p<0.01

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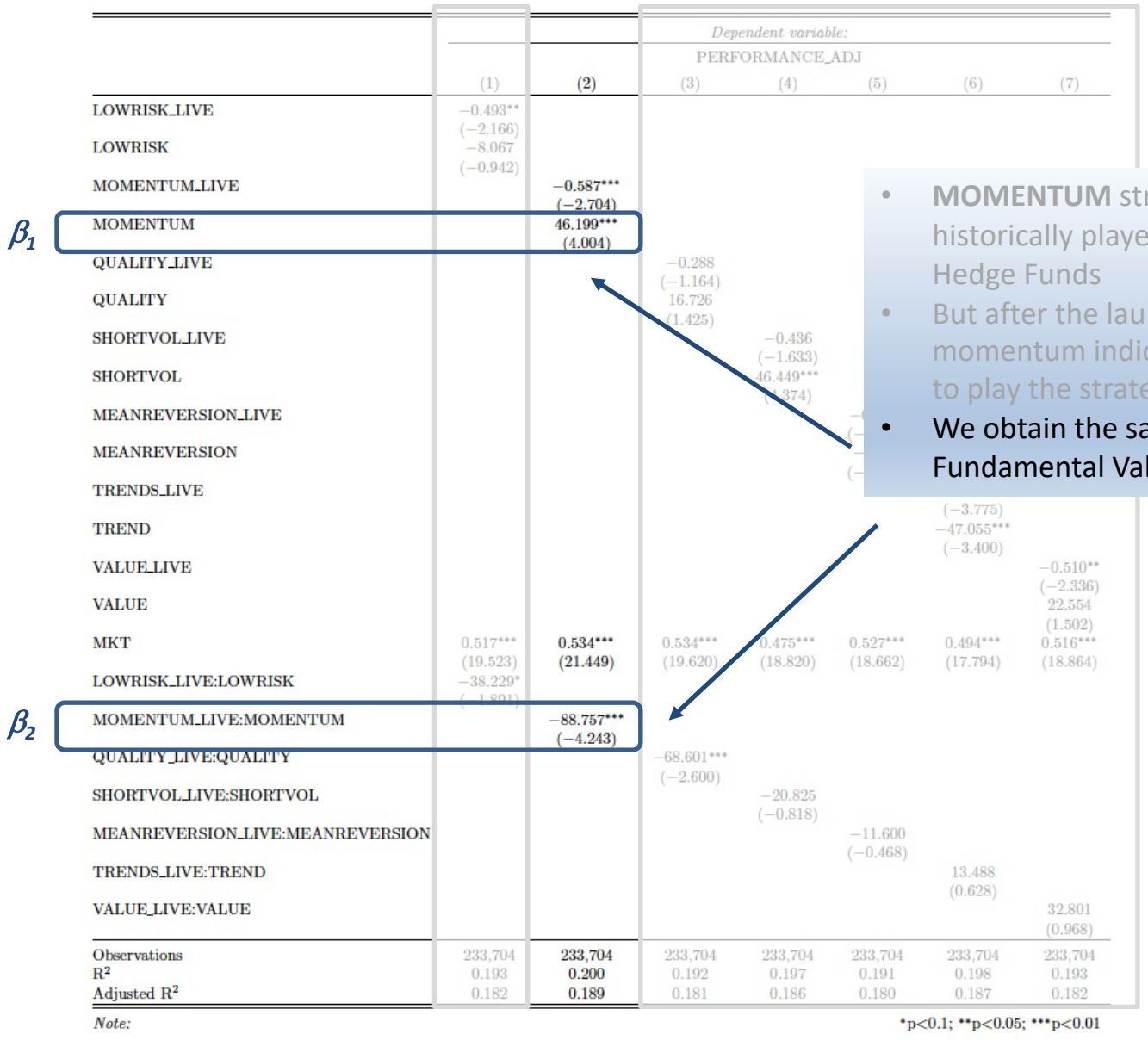
- But after the launch of momentum indices, funds stop to play the strategy

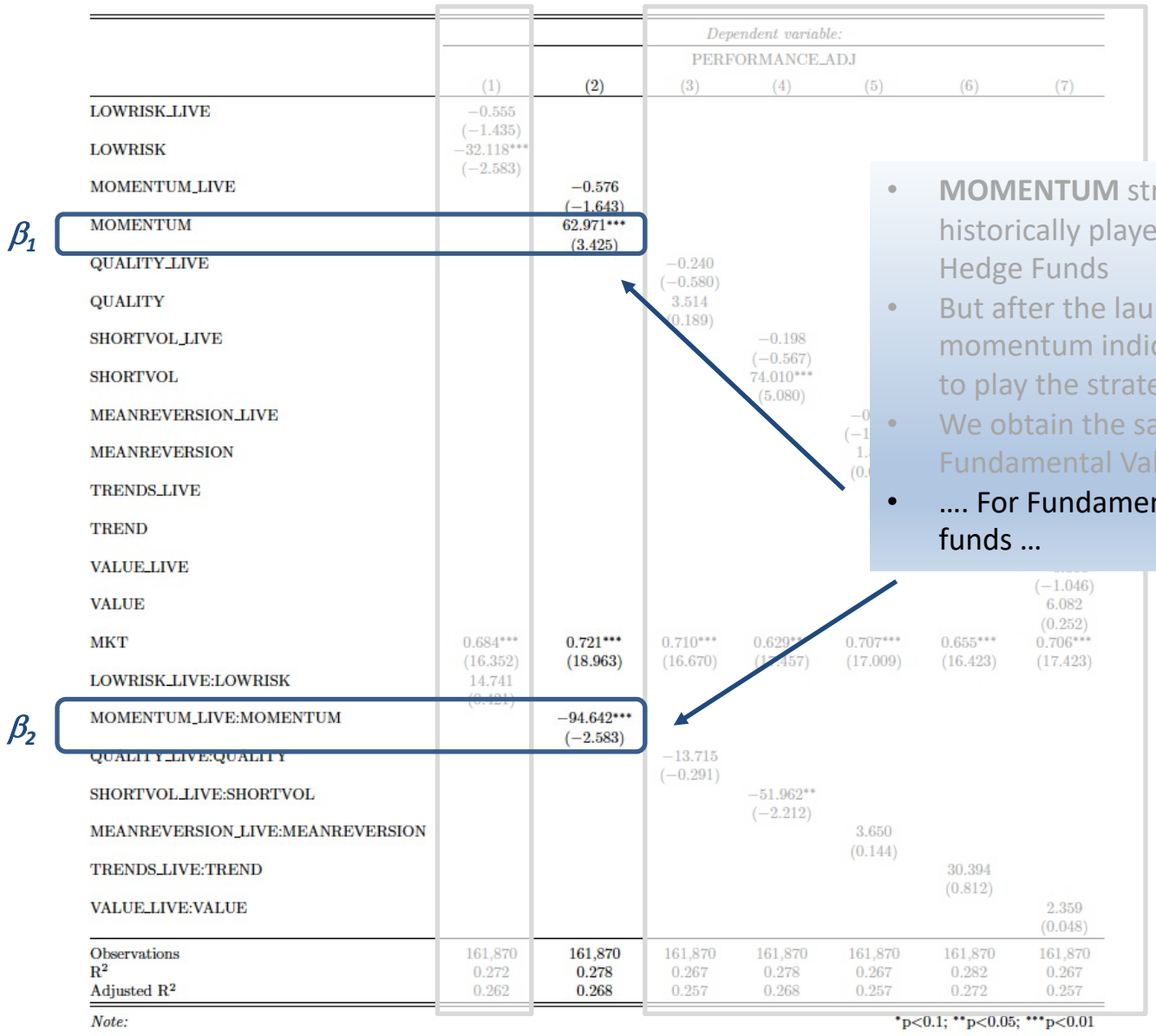
1st Result – MOMENTUM & Fund. Value



	Dependent variable: PERFORMANCE_ADJ						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
LOWRISK_LIVE	−0.493**						
	(−2.166)						
LOWRISK	−8.067						
	(−0.942)						
MOMENTUM_LIVE		−0.587***					
		(−2.704)					
β_1 MOMENTUM		46.199***					
		(4.004)					
QUALITY_LIVE			−0.288				
			(−1.164)				
QUALITY			16.726				
			(1.425)				
SHORTVOL_LIVE				−0.436			
				(−1.633)			
SHORTVOL				46.449***			
				(4.374)			
MEANREVERSION_LIVE							
MEANREVERSION							
TRENDS_LIVE							
TREND						(−3.775)	
						−47.055***	
						(−3.400)	
VALUE_LIVE							−0.510**
							(−2.336)
VALUE							22.554
							(1.502)
MKT	0.517***	0.534***	0.534***	0.475***	0.527***	0.494***	0.516***
	(19.523)	(21.449)	(19.620)	(18.820)	(18.662)	(17.794)	(18.864)
LOWRISK_LIVE:LOWRISK	−38.229*						
	(−1.891)						
β_2 MOMENTUM_LIVE:MOMENTUM		−88.757***					
		(−4.243)					
QUALITY_LIVE:QUALITY			−68.601***				
			(−2.600)				
SHORTVOL_LIVE:SHORTVOL				−20.825			
				(−0.818)			
MEANREVERSION_LIVE:MEANREVERSION					−11.600		
					(−0.468)		
TRENDS_LIVE:TREND						13.488	
						(0.628)	
VALUE_LIVE:VALUE							32.801
							(0.968)
Observations	233,704	233,704	233,704	233,704	233,704	233,704	233,704
R^2	0.193	0.200	0.192	0.197	0.191	0.198	0.193
Adjusted R^2	0.182	0.189	0.181	0.186	0.180	0.187	0.182
Note:							*p<0.1; **p<0.05; ***p<0.01

- **MOMENTUM** strategies were historically played by Equity Hedge Funds
- But after the launch of momentum indices, funds stop to play the strategy
- We obtain the same result for Fundamental Value funds ….

1st Result – MOMENTUM & Fund. Growth



	Dependent variable:						
	PERFORMANCE_ADJ						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
LOWRISK_LIVE	−0.555						
	(−1.435)						
LOWRISK	−32.118***						
	(−2.583)						
MOMENTUM_LIVE		−0.576					
		(−1.643)					
β_1 MOMENTUM		62.971***					
		(3.425)					
QUALITY_LIVE			−0.240				
			(−0.580)				
QUALITY			3.514				
			(0.189)				
SHORTVOL_LIVE				−0.198			
				(−0.567)			
SHORTVOL				74.010***			
				(5.080)			
MEANREVERSION_LIVE							
MEANREVERSION							
TRENDS_LIVE							
TREND							
VALUE_LIVE							
VALUE							(−1.046)
							6.082
							(0.252)
MKT	0.684***	0.721***	0.710***	0.629***	0.707***	0.655***	0.706***
	(16.352)	(18.963)	(16.670)	(15.457)	(17.009)	(16.423)	(17.423)
LOWRISK_LIVE:LOWRISK	14.741						
	(0.421)						
β_2 MOMENTUM_LIVE:MOMENTUM		−94.642***					
		(−2.583)					
QUALITY_LIVE:QUALITY			−13.715				
			(−0.291)				
SHORTVOL_LIVE:SHORTVOL				−51.962**			
				(−2.212)			
MEANREVERSION_LIVE:MEANREVERSION					3.650		
					(0.144)		
TRENDS_LIVE:TREND						30.394	
						(0.812)	
VALUE_LIVE:VALUE							2.359
							(0.048)
Observations	161,870	161,870	161,870	161,870	161,870	161,870	161,870
R^2	0.272	0.278	0.267	0.278	0.267	0.282	0.267
Adjusted R^2	0.262	0.268	0.257	0.268	0.257	0.272	0.257
Note:							*p<0.1; **p<0.05; ***p<0.01

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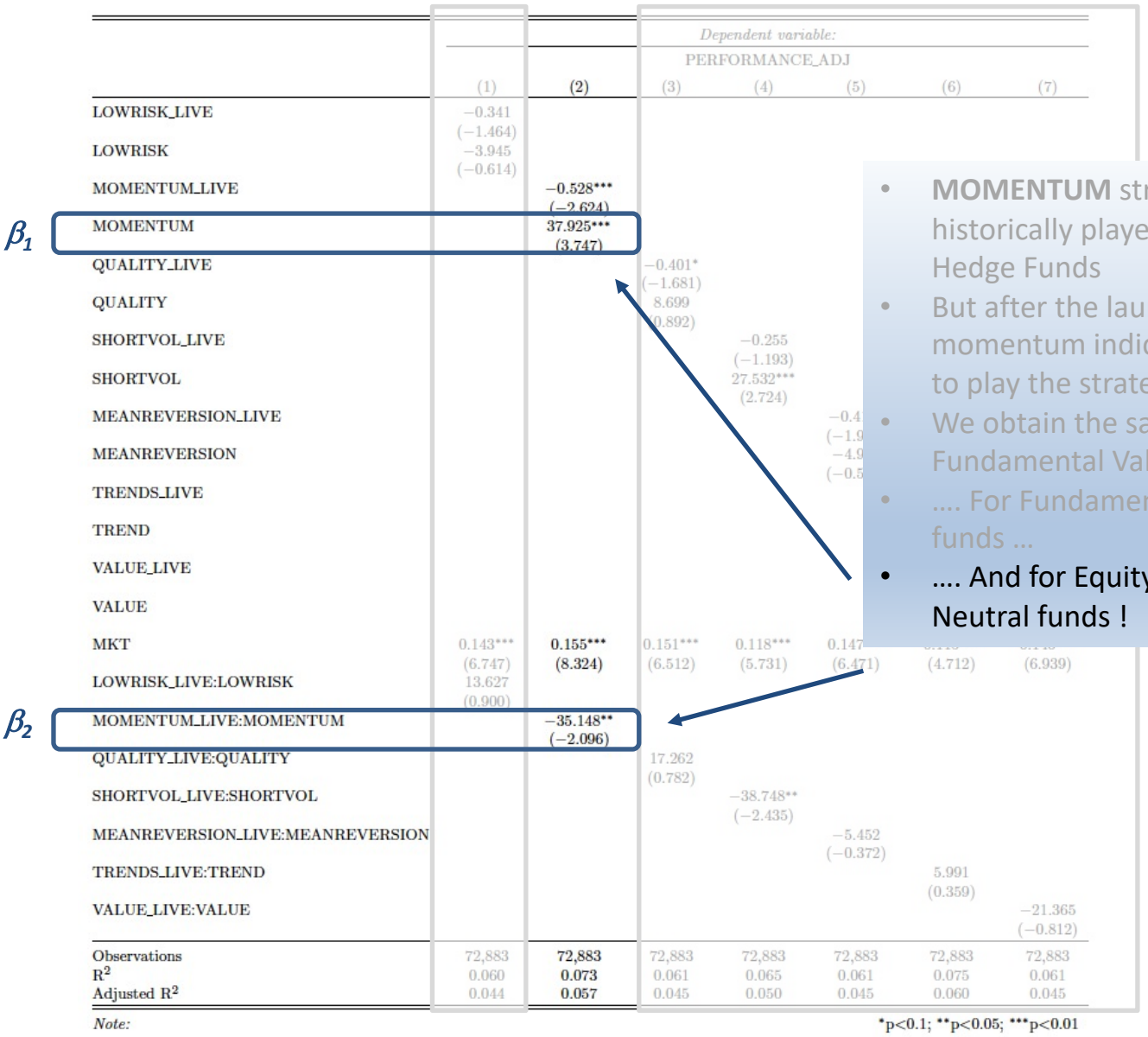
- …. For Fundamental Growth funds …

1st Result – MOMENTUM & Equity MN



	Dependent variable: PERFORMANCE_ADJ						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
LOWRISK_LIVE	−0.341						
	(−1.464)						
LOWRISK	−3.945						
	(−0.614)						
MOMENTUM_LIVE		−0.528***					
		(−2.624)					
β_1 MOMENTUM		37.925***					
		(3.747)					
QUALITY_LIVE			−0.401*				
			(−1.681)				
QUALITY			8.699				
			0.892)				
SHORTVOL_LIVE				−0.255			
				(−1.193)			
SHORTVOL				27.532***			
				(2.724)			
MEANREVERSION_LIVE					−0.4		
					(−1.9		
MEANREVERSION					−4.9		
					(−0.5		
TRENDS_LIVE							
TREND							
VALUE_LIVE							
VALUE							
MKT	0.143***	0.155***	0.151***	0.118***	0.147		
	(6.747)	(8.324)	(6.512)	(5.731)	(6.471)	(4.712)	(6.939)
LOWRISK_LIVE:LOWRISK	13.627						
	(0.900)						
β_2 MOMENTUM_LIVE:MOMENTUM		−35.148**					
		(−2.096)					
QUALITY_LIVE:QUALITY			17.262				
			(0.782)				
SHORTVOL_LIVE:SHORTVOL				−38.748**			
				(−2.435)			
MEANREVERSION_LIVE:MEANREVERSION					−5.452		
					(−0.372)		
TRENDS_LIVE:TREND						5.991	
						(0.359)	
VALUE_LIVE:VALUE							−21.365
							(−0.812)
Observations	72,883	72,883	72,883	72,883	72,883	72,883	72,883
R^2	0.060	0.073	0.061	0.065	0.061	0.075	0.061
Adjusted R^2	0.044	0.057	0.045	0.050	0.045	0.060	0.045
Note:							*p<0.1; **p<0.05; ***p<0.01

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- …. For Fundamental Growth funds …
- …. And for Equity Market Neutral funds !

1st Result

- (The launch of) **MOMENTUM** indices has a significant effect on all Equity strategies
- (….) **SHORTVOL** indices impact Fundamental Growth and Market Neutral strategies
- (….) **QUALITY** indices impact Fundamental Value but not Fundamental Growth strategies
- (….) **LOWRISK**, **MEAN REVERSION** and **TREND** has no impact on the Equity fund performance

QUESTION 1: *Can we infer from Bank Risk Premia (BRP) products (passive management) any insights about the strategies implemented by Hedge Funds (active management)?*

The answer is YES

Do we observe a decrease in anomaly-based trading when the strategy is available through an index ?

The answer is YES

II. Regression model with Mutual Funds

$$Return_{i,t} = \alpha_0 Premium\_Live_t + \beta_1 Premium_t + \beta_2 Premium\_Live_t * Premium_t + \beta_3 Market_t + \epsilon_{i,t} \quad (1)$$

where $Return_{i,t}$ is the exchange-rate adjusted performance for fund i in month t, $Premium\_Live_t$ is a dummy variable that is 1 if t is later than the live (inception) date of $Premium$, and $Market_t$ is the return on the CRSP value-weighted US equity market index.

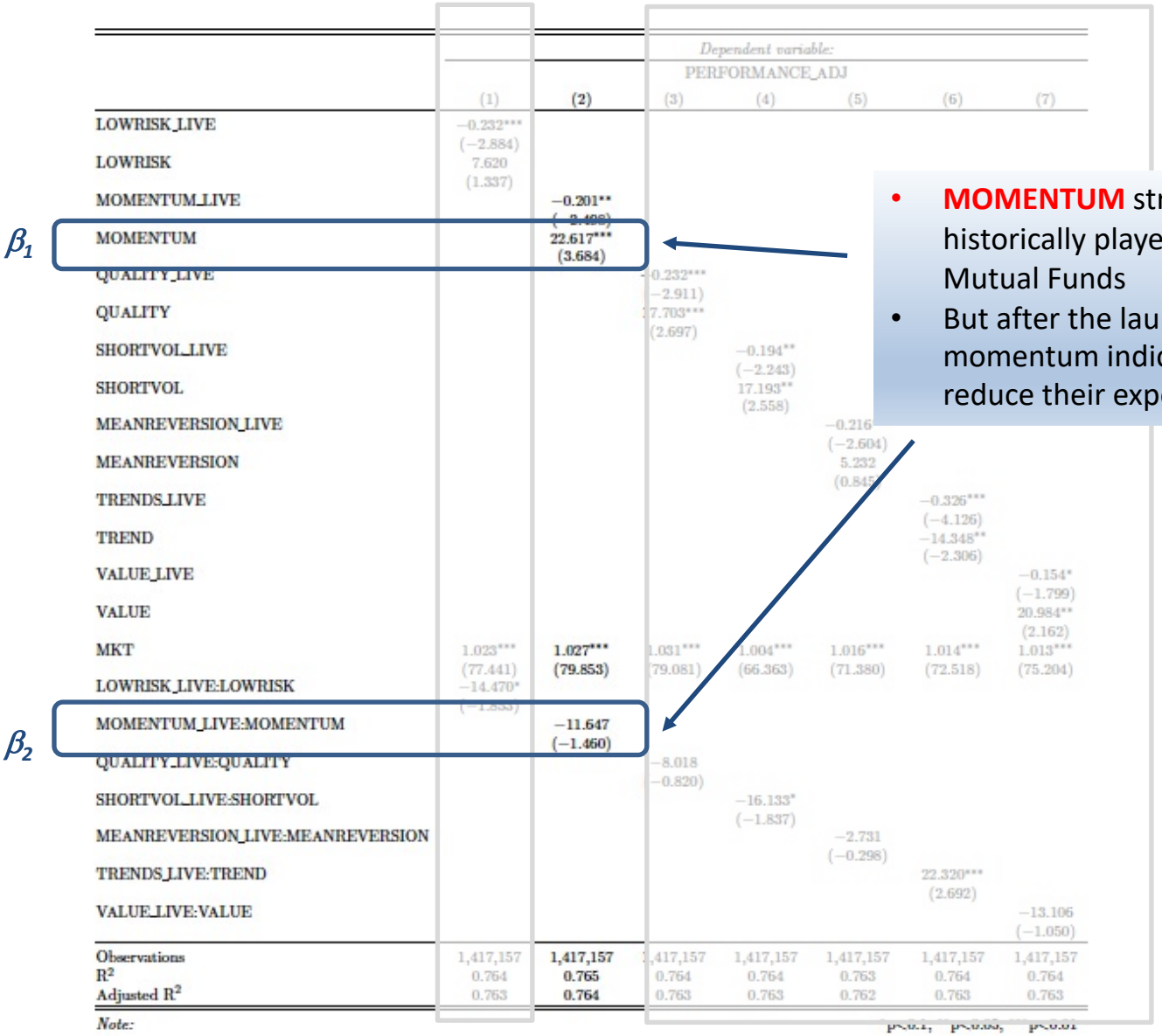
Hypothesis H1: *MF managers continue or even increase (β_2 is positive or null) their exposures to the strategy after the index inception date because they are cheap and still competitive compared to indices.*

MF offer to investors the liquidity that is difficult to find with indices.

Hypothesis H2: *MF managers do not see the opportunity to implement these strategies in their funds after the index inception date (β_2 is negative) because they cannot compete against indices.*

Investors do not want to pay MF for something available at a lower price with indices.

2nd Result – MOMENTUM & Equity



	Dependent variable: PERFORMANCE_ADJ						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
LOWRISK_LIVE	−0.232*** (−2.884)						
LOWRISK	7.620 (1.337)						
MOMENTUM_LIVE		−0.201** (−2.488)					
β_1 MOMENTUM		22.617*** (3.684)					
QUALITY_LIVE			−0.232*** (−2.911)				
QUALITY			17.703*** (2.697)				
SHORTVOL_LIVE				−0.194** (−2.243)			
SHORTVOL				17.193** (2.558)			
MEANREVERSION_LIVE					−0.216 (−2.604)		
MEANREVERSION					5.232 (0.845)		
TRENDS_LIVE						−0.326*** (−4.126)	
TREND						−14.348** (−2.306)	
VALUE_LIVE							−0.154* (−1.799)
VALUE							20.984** (2.162)
MKT	1.023*** (77.441)	1.027*** (79.853)	1.031*** (79.081)	1.004*** (66.363)	1.016*** (71.380)	1.014*** (72.518)	1.013*** (75.204)
LOWRISK_LIVE:LOWRISK	−14.470* (−1.853)						
β_2 MOMENTUM_LIVE:MOMENTUM		−11.647 (−1.460)					
QUALITY_LIVE:QUALITY			−8.018 (−0.820)				
SHORTVOL_LIVE:SHORTVOL				−16.133* (−1.837)			
MEANREVERSION_LIVE:MEANREVERSION					−2.731 (−0.298)		
TRENDS_LIVE:TRENDS						22.320*** (2.692)	
VALUE_LIVE:VALUE							−13.106 (−1.050)
Observations	1,417,157	1,417,157	1,417,157	1,417,157	1,417,157	1,417,157	1,417,157
R^2	0.764	0.765	0.764	0.764	0.763	0.764	0.764
Adjusted R^2	0.763	0.764	0.763	0.763	0.762	0.763	0.763
Note:							

- **MOMENTUM** strategies were historically played by Equity Mutual Funds
- But after the launch of momentum indices, funds reduce their exposures

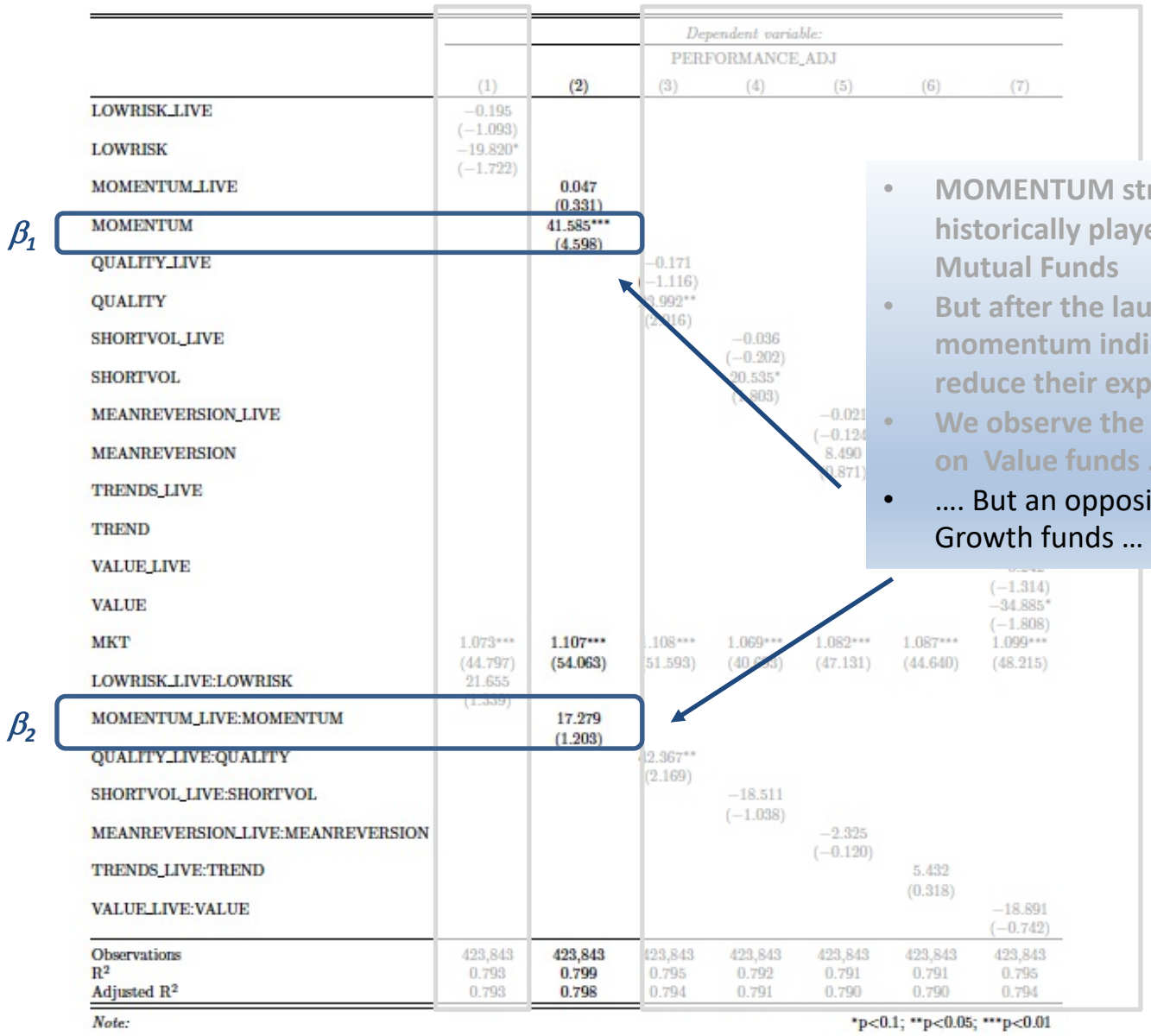
2nd Result – MOMENTUM & Value

	Dependent variable:						
	PERFORMANCE_ADJ						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
LOWRISK_LIVE	−0.265*						
	(−1.878)						
LOWRISK	40.200***						
	(4.669)						
MOMENTUM_LIVE		−0.452***					
		(−3.448)					
β_1 MOMENTUM		4.103					
		(0.436)					
QUALITY_LIVE			−0.303**				
			(−2.136)				
QUALITY			22.558**				
			(1.980)				
SHORTVOL_LIVE				−0.408***			
				(−2.693)			
SHORTVOL				11.124			
				(1.133)			
MEANREVERSION_LIVE					[illegible]		
					[illegible]		
MEANREVERSION					[illegible]		
					[illegible]		
TRENDS_LIVE						[illegible]	
						(−4.178)	
TREND						−27.339***	
						(−2.865)	
VALUE_LIVE							−0.058
							(−0.495)
VALUE							82.788***
							(6.552)
MKT	0.992***	0.965***	0.979***	0.957***	0.967***	0.956***	0.943***
	(51.070)	(40.179)	(42.329)	(32.491)	(39.049)	(38.371)	(40.608)
LOWRISK_LIVE:LOWRISK	−61.865***						
	(−4.137)						
β_2 MOMENTUM_LIVE:MOMENTUM		−37.195***					
		(−2.745)					
QUALITY_LIVE:QUALITY			−63.729***				
			(−3.486)				
SHORTVOL_LIVE:SHORTVOL				−4.665			
				(−0.331)			
MEANREVERSION_LIVE:MEANREVERSION					2.938		
					(0.221)		
TRENDS_LIVE:TREND						42.878***	
						(2.885)	
VALUE_LIVE:VALUE							−12.089
							(−0.705)
Observations	390,204	390,204	390,204	390,204	390,204	390,204	390,204
R^2	0.815	0.805	0.805	0.803	0.803	0.806	0.823
Adjusted R^2	0.815	0.804	0.804	0.802	0.802	0.805	0.822

Note: *p<0.1; **p<0.05; ***p<0.01

- **MOMENTUM** strategies were historically played by Equity Mutual Funds
- But after the launch of momentum indices, funds reduce their exposures
- We observe the same behavior on Value funds ….

2nd Result – MOMENTUM & Growth



	Dependent variable:						
	PERFORMANCE_ADJ						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
LOWRISK_LIVE	−0.195						
	(−1.093)						
LOWRISK	−19.820*						
	(−1.722)						
MOMENTUM_LIVE		0.047					
		(0.331)					
β_1 MOMENTUM		41.585***					
		(4.598)					
QUALITY_LIVE			−0.171				
			(−1.116)				
QUALITY			3.992**				
			(2.016)				
SHORTVOL_LIVE				−0.036			
				(−0.202)			
SHORTVOL				20.535*			
				(1.803)			
MEANREVERSION_LIVE					−0.021		
					(−0.124		
MEANREVERSION					8.490		
					(0.871)		
TRENDS_LIVE							
TREND							
VALUE_LIVE							
VALUE							(−1.314)
							−34.885*
							(−1.808)
MKT	1.073***	1.107***	.108***	1.069***	1.082***	1.087***	1.099***
	(44.797)	(54.063)	51.593)	(40.693)	(47.131)	(44.640)	(48.215)
LOWRISK_LIVE:LOWRISK	21.655						
	(1.339)						
β_2 MOMENTUM_LIVE:MOMENTUM		17.279					
		(1.203)					
QUALITY_LIVE:QUALITY			2.367**				
			(2.169)				
SHORTVOL_LIVE:SHORTVOL				−18.511			
				(−1.038)			
MEANREVERSION_LIVE:MEANREVERSION					−2.325		
					(−0.120)		
TRENDS_LIVE:TREND						5.432	
						(0.318)	
VALUE_LIVE:VALUE							−18.891
							(−0.742)
Observations	423,843	423,843	423,843	423,843	423,843	423,843	423,843
R^2	0.793	0.799	0.795	0.792	0.791	0.791	0.795
Adjusted R^2	0.793	0.798	0.794	0.791	0.790	0.790	0.794
Note:							*p<0.1; **p<0.05; ***p<0.01

- MOMENTUM strategies were historically played by Equity Mutual Funds
- But after the launch of momentum indices, funds reduce their exposures
- We observe the same behavior on Value funds ….
- …. But an opposite result or Growth funds …

2st Result

- (The launch of) **MOMENTUM** indices has a different effect on Equity strategies
- (….) **SHORTVOL** and **LOWRISK** indices impact negatively Equity strategies
- (….) **TREND** indices impact positively Equity strategies
- (….) **QUALITY**, **MEAN REVERSION** and **VALUE** has no impact on the Equity fund performance

QUESTION 2: *Do we observe some differences between in the strategies implemented by sophisticated (Hedge Funds) and less sophisticated (Mutual Funds) institutional investors ?*

The answer is NO

Next developments

1) Exogeneity of the shock used in the identification scheme – Could ~~academic publication~~ the launch of indices be a consequence of the decay in anomaly returns ?

2) Robustness checks to be made on a particular subset of the MF database – for example in separating cheap and expensive MF. Expensive MF may stop implementing the strategy and cheap MF may continue

3) We can also compare quasi-index and actively managed MF, with interesting conclusions to draw depending on the result we obtain:

   - If quasi-index funds do not adopt new strategies but actively managed MF do, the liquidity explanation will be confirmed

   - If both categories do not adopt new strategies, the cost explanation will be confirmed