

# Does the Weighted Voting Right (WVR) Structure Create Value for Shareholders in the Long Run?

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# What is a WVR structure?

- Contrary to the "one-share, one-vote" structure, a "weighted voting right" (WVR) structure refers to the governance structure that gives certain persons voting power or other related rights that are disproportionate to their shareholdings.
- Alphabet, the parent company of Google (31 Jan 2018)

Class	A	B	C
# of shares outstanding	298,492,525	46,961,288	349,843,717
# of votes per share	1	10	0

# New Listing Rules in Hong Kong

New listing requirements on the HKEx Main Board came into effect on 30 April 2018 for:

- pre-revenue/pre-profit Biotech Companies
- innovative companies with weighted voting right (WVR) structures
- innovative companies seeking a secondary listing in Hong Kong

# Specifics about a WVR structure

- A WVR structure must be attached to a specific class of unlisted shares.
- Voting power of WVR shares cannot exceed 10 times of the voting power of ordinary shares.
- Non-WVR shareholders hold at least 10% of voting power
- The proportion of WVR in issue cannot increase after listing.
- Each WVR beneficiary must be a director of the issuer at the time of listing.
- WVR will lapse permanently if: (i) the beneficiary dies/ ceases to a director/ is incapacitated/ no longer meets the requirements of a director; or (ii) the shares are transferred to another person.

# WVR firms in MSCI developed markets

Country	Exchange	# of SVC firms	# of MVC firms	Ratio
Australia	Australian	3604	13	0.4%
Japan	Tokyo	3834	5	0.1%
Canada	Toronto	4522	145	3.2%
	TSX Venture	4701	28	0.6%
United States	Nasdaq	6683	218	3.3%
	New York	9706	210	2.2%
	NYSE MKT	1109	11	1.0%
	OTC Bulletin Bd.	1501	22	1.5%
	Other OTC	15234	138	0.9%
Sweden	Stockholm	932	220	23.6%
	Aktietorget	139	24	17.3%
Denmark	Copenhagen	361	53	14.7%
Finland	Helsinki	193	56	29.0%
Norway	Oslo	630	11	1.7%
Switzerland	SIX Swiss	798	6	0.8%
United Kingdom	London	6847	21	0.3%
All		60794	1181	1.9%

# WVR firms along the timeline

Country	1989	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	Sum
Australia						1							2				1	2	1	1			3	1	12
Japan															1		2		1		1				5
Canada						1	40	32	11	16	9	8	8	4	3	3	9	8	7	5	5	1	3	1	174
United States	21	8	13	23	42	49	49	52	40	35	42	38	9	14	12	24	16	16	18	13	6	18	17	26	601
Sweden						4	16	16	34	23	31	14	13	3	4	10	9	15	16	8	11	4	6	6	243
Finland			1		5	6	5	6	4	5	9	4	5		1		1	3						1	56
Denmark						3	4	9	4	7	7	4	6	1	2		1		4		1				53
United Kingdom								2	1	1	2	2			2	1		1		1	3	1	3		20
Norway						3	1	2	3					1						1					11
Switzerland								2	1	1		1							1						6
All	21	8	14	23	47	67	115	121	98	88	100	71	43	23	25	38	39	45	48	29	27	24	32	35	1181

# WVR firms by timing and industry

Industry	Number of IPO MVC firms	# of Non-IPO MVC firms	Sum
Aerospace & Defense	9	1	10
Alternative Energy	2	5	7
Automobiles & Parts	5	6	11
Banks	15	12	27
Beverages	17	5	22
Chemicals	9	1	10
Construct. & Material	27	10	37
E/tronic & E/cal Equ.	41	8	49
Electricity	4	4	8
Financial Services(4)	53	15	68
Fixed Line Telecom.	11	7	18
Food & Drug Retailers	11	2	13
Food Producers	24	11	35
Forestry & Paper	9	4	13
Gas, Water & Mul Util	2	1	3
General Industrials	7	4	11
General Retailers	43	17	60
Healthcare Equip.Svs.	38	8	46
Hhold Gds & Home Con.	25	9	34
Ind. Engineering	28	11	39



Ind. Metals & Mining	11	3	14
Industrial Transport	28	4	32
Leisure Goods	14	1	15
Life Insurance	3	1	4
Media	89	19	108
Mining	10	7	17
Mobile Telecom.	11	9	20
Nonlife Insurance	14	7	21
Oil & Gas Producers	20	5	25
Oil Equip. & Services	12	4	16
Personal Goods	26	7	33
Pharm. & Biotech	29	11	40
Real Estate Inv & Svs	25	5	30
REITs	10	3	13
Software & Comp. Svs.	63	23	86
Support Services	57	20	77
Tech Hware & Equipmnt	26	21	47
Tobacco	1	0	1
Travel & Leisure	41	14	55
Unclassified	5	1	6
<b>All</b>	<b>875</b>	<b>306</b>	<b>1181</b>





# WVR firms that unified their voting right classes

Country	1995	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	Sum
Australia							1		1	1					2	2	1			8
Canada				3	2	2	3	2	3	6	1	6	7	4	3	6	3	4	4	59
Denmark						1				1		2	1	1		1	1			8
Finland		1	1	2	1	1	1	1		2	3	2	1		2	1				19
Japan													1							1
Norway			1		1	1	1		1					1					1	7
Sweden			1	1	1	2	2	1	1	4		1	5		2	1				22
Switzerland							1		1				1							3
United Kingdom						1		1	1		2			1	1	2				9
United States	1	3	7	8	8	9	16	11	16	12	9	12	6	5	4	6	8	6	11	158
All	1	4	10	14	13	17	25	16	24	26	15	23	22	12	14	19	13	10	16	294

# WVR firms by country and voting rights ratio

	<b>Number of firms with non-voting shares</b>	<b># of firms with voting rights ratio equal to 10</b>	<b># of firms with voting rights ratio less than 10</b>	<b># of firms with voting rights ratio greater than 10</b>	<b>Sum</b>
<b>Australia</b>	9	1	1	1	12
<b>Japan</b>	5	0	0	0	5
<b>Canada</b>	72	50	23	29	174
<b>United States</b>	152	300	89	60	601
<b>Sweden</b>	1	225	16	1	243
<b>Finland</b>	0	15	3	38	56
<b>Denmark</b>	1	45	0	7	53
<b>United Kingdom</b>	14	1	4	1	20
<b>Norway</b>	11	0	0	0	11
<b>Switzerland</b>	6	0	0	0	6
<b>All</b>	271	637	136	137	1181

# Potential effects of WVR structure

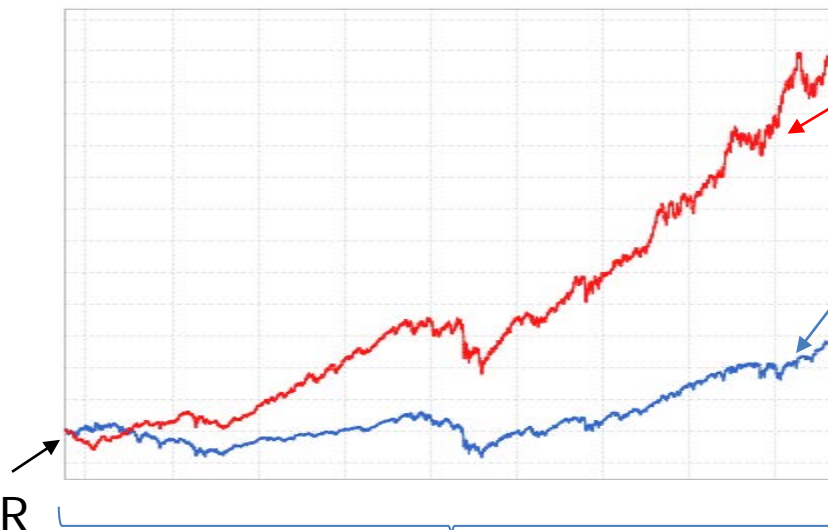
## Chemmanur and Jiao (2012)

- Value creation effect
  - Talented entrepreneurs are protected from temporary fluctuation in market valuation and takeover threat.
- Loss of discipline effect
  - Untalented managers are entrenched.
- Control benefits effect
  - Managers favour private control benefits.

What impact do these effects have in the long run?

# Long-horizon performance (1)

- Buy-and-hold returns



one WVR firm

Benchmark:

A portfolio of up to 30 firms of similar size, in the same industry, and on the same exchange.

Start of WVR structure

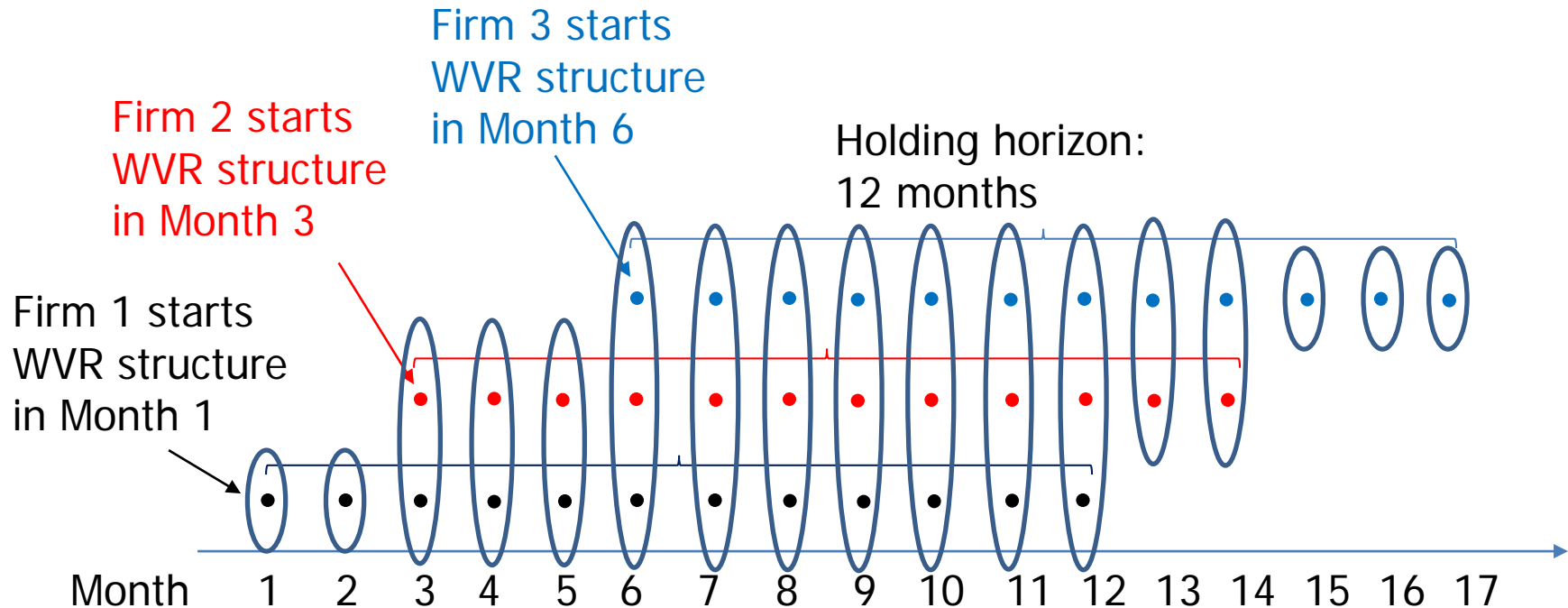
Holding horizon:  
1 year, 3 years, or 5 years

Buy-and-hold return:  
Compounding monthly returns in the holding horizon

$$R_i = \prod_{t=1}^T (1 + r_{it}) - 1$$

# Long-horizon performance (2)

- Calendar-time portfolio (illustrated with 3 firms)



In each month, the calendar-time portfolio consists of firms that started the WVR structure in the past 12 months.

# Long-horizon performance (2)

- Five-factor asset pricing model

$$R_{it} - r_{ft} = \alpha + \beta_i(R_{mt} - r_{ft}) + \gamma_iSMB_t + \eta_iHML_t + \lambda_iRMW_t + \mu_iCMA_t + e_{it}$$

Dependent variable: monthly return on the calendar-time portfolios

Independent variables:

$R_m - r_f$  is the market factor

SMB is the size factor

HML is the value factor

RMW is the profitability factor

CMA is the investment factor

The intercept, so called **alpha ( $\alpha$ )**, captures the abnormal return.

# Buy-and-hold returns for all WVR firms

	One-year		Three-year		Five-year	
	MVC firms	Benchmark	MVC firms	Benchmark	MVC firms	Benchmark
# of firms	1176	1176	1119	1119	1008	1008
# of firms with positive BHR	628	773	570	739	546	686
Mean	0.180	0.237	0.545	0.400	1.096	0.657
Minimum	-1.000	-0.847	-1.000	-0.941	-1.000	-0.971
1st quartile (Q1)	-0.278	-0.072	-0.501	-0.136	-0.578	-0.136
Median	0.042	0.116	0.025	0.241	0.111	0.427
3rd quartile (Q3)	0.384	0.309	0.805	0.668	1.177	1.071
Maximum	10.807	56.117	71.002	59.616	206.590	28.722
Range (Maximum-Minimum)	11.807	56.963	72.002	60.557	207.590	29.693
Interquartile Range (Q3-Q1)	0.662	0.381	1.306	0.804	1.755	1.207
Standard Deviation	0.886	1.829	2.926	1.977	7.151	1.609
Skewness	4.277	25.758	15.332	24.497	24.067	8.609

# Buy-and-hold returns for NYSE-listed WVR firms

	One-year		Three-year		Five-year	
	MVC firms	Benchmark	MVC firms	Benchmark	MVC firms	Benchmark
# of firms	220	220	214	214	193	193
# of firms with positive BHR	142	185	137	193	129	181
Mean	0.238	0.207	0.644	0.584	1.070	1.069
Minimum	-0.901	-0.369	-0.927	-0.500	-0.928	-0.221
1st quartile (Q1)	-0.105	0.052	-0.240	0.215	-0.241	0.484
Median	0.163	0.201	0.273	0.562	0.471	0.936
3rd quartile (Q3)	0.458	0.318	0.917	0.807	1.345	1.410
Maximum	3.332	1.724	22.887	4.069	28.828	7.241
Range (Maximum-Minimum)	4.234	2.093	23.815	4.569	29.756	7.462
Interquartile Range (Q3-Q1)	0.563	0.265	1.157	0.592	1.586	0.926
Standard Deviation	0.569	0.242	1.952	0.586	2.667	0.964
Skewness	1.637	1.830	7.624	1.996	6.564	2.791



# Buy-and-hold returns for Nasdaq-listed WVR firms

	One-year		Three-year		Five-year	
	MVC firms	Benchmark	MVC firms	Benchmark	MVC firms	Benchmark
# of firms	217	217	197	197	175	175
# of firms with positive BHR	113	149	103	153	100	143
Mean	0.146	0.160	0.933	0.539	1.050	0.892
Minimum	-0.972	-0.667	-0.995	-0.835	-0.993	-0.754
1st quartile (Q1)	-0.352	-0.050	-0.505	0.060	-0.520	0.071
Median	0.061	0.121	0.025	0.435	0.188	0.749
3rd quartile (Q3)	0.396	0.335	0.829	0.758	1.216	1.341
Maximum	6.394	2.377	71.002	4.541	19.689	6.487
Range (Maximum-Minimum)	7.366	3.043	71.997	5.376	20.682	7.240
Interquartile Range (Q3-Q1)	0.747	0.385	1.334	0.699	1.736	1.270
Standard Deviation	0.841	0.392	5.376	0.798	2.826	1.191
Skewness	2.995	1.531	11.479	1.697	3.423	2.250

# Buy-and-hold returns for OTC markets

	One-year		Three-year		Five-year	
	MVC firms	Benchmark	MVC firms	Benchmark	MVC firms	Benchmark
# of firms	158	158	150	150	137	137
# of firms with positive BHR	62	60	47	47	36	34
Mean	0.176	0.586	-0.070	0.371	-0.030	0.139
Minimum	-1.000	-0.820	-1.000	-0.937	-1.000	-0.971
1st quartile (Q1)	-0.504	-0.272	-0.876	-0.609	-0.966	-0.684
Median	-0.143	-0.080	-0.528	-0.237	-0.746	-0.441
3rd quartile (Q3)	0.300	0.120	0.224	0.172	0.023	-0.010
Maximum	8.333	56.117	6.000	59.616	12.853	28.722
Range (Maximum-Minimum)	9.333	56.936	7.000	60.553	13.853	29.693
Interquartile Range (Q3-Q1)	0.804	0.392	1.099	0.782	0.989	0.673
Standard Deviation	1.337	4.875	1.205	5.075	2.068	3.253
Skewness	3.453	9.993	2.237	10.877	4.205	7.618

# Buy-and-hold returns for Canada WVR firms

	One-year		Three-year		Five-year	
	MVC firms	Benchmark	MVC firms	Benchmark	MVC firms	Benchmark
# of firms	172	172	162	162	138	138
# of firms with positive BHR	88	128	87	109	79	97
Mean	0.089	0.227	0.802	0.389	2.580	0.593
Minimum	-0.988	-0.790	-0.997	-0.784	-0.994	-0.815
1st quartile (Q1)	-0.317	-0.004	-0.501	-0.074	-0.542	-0.048
Median	0.004	0.160	0.186	0.254	0.201	0.434
3rd quartile (Q3)	0.335	0.306	1.336	0.687	1.635	0.973
Maximum	5.541	3.635	38.632	3.387	206.590	5.837
Range (Maximum-Minimum)	6.529	4.425	39.630	4.171	207.584	6.652
Interquartile Range (Q3-Q1)	0.653	0.310	1.837	0.761	2.177	1.021
Standard Deviation	0.741	0.523	3.351	0.676	18.030	1.062
Skewness	3.086	2.923	9.117	1.251	10.722	1.811

# Buy-and-hold returns for Australia and Japan WVR firms

	One-year		Three-year		Five-year	
	MVC firms	Benchmark	MVC firms	Benchmark	MVC firms	Benchmark
# of firms	18	18	17	17	16	16
# of firms with positive BHR	12	10	9	11	6	10
Mean	0.564	0.103	0.631	0.446	0.374	0.420
Minimum	-0.538	-0.409	-0.837	-0.800	-0.758	-0.836
1st quartile (Q1)	-0.079	-0.251	-0.645	-0.269	-0.655	-0.117
Median	0.275	0.043	0.128	0.207	-0.267	0.187
3rd quartile (Q3)	0.842	0.418	1.196	0.630	0.689	0.560
Maximum	3.164	1.126	6.000	5.796	5.619	4.451
Range (Maximum-Minimum)	3.703	1.535	6.837	6.597	6.377	5.287
Interquartile Range (Q3-Q1)	0.921	0.669	1.841	0.900	1.344	0.677
Standard Deviation	1.015	0.430	1.761	1.482	1.633	1.270
Skewness	1.404	0.695	1.807	2.925	2.278	2.085

# Buy-and-hold returns for unification firms

	One-year		Three-year		Five-year	
	MVC firms	Benchmark	MVC firms	Benchmark	MVC firms	Benchmark
# of firms	276	276	246	246	209	209
# of firms with positive BHR	169	183	127	150	111	127
Mean	0.303	0.143	0.661	0.319	1.121	0.556
Minimum	-0.996	-0.712	-1.000	-0.872	-1.000	-1.000
1st quartile (Q1)	-0.272	-0.098	-0.608	-0.238	-0.651	-0.191
Median	0.142	0.138	0.052	0.157	0.118	0.251
3rd quartile (Q3)	0.624	0.350	0.920	0.694	1.255	0.974
Maximum	5.541	3.213	12.724	5.699	47.198	8.005
Range (Maximum-Minimum)	6.537	3.926	13.724	6.571	48.198	9.005
Interquartile Range (Q3-Q1)	0.896	0.448	1.528	0.932	1.905	1.165
Standard Deviation	0.964	0.431	2.086	0.826	4.065	1.292
Skewness	2.098	1.665	2.768	2.024	7.577	2.222

# Alphas

	One year	Three years	Five years
All WVR firms	0.109	0.668**	0.662***
WVR IPOs	0.497	0.787***	0.726***
non-IPO WVR firms	0.241	0.391	0.32
NYSE	0.215	0.311	0.0379
Nasdaq	0.462	0.00709*	0.756***
OTC	1.66	-1.83**	-2.08***
Canada	-1.06	-0.238	-0.0383
Sweeden	-0.0277	0.932***	0.804***
Other European Mkts	0.285	-0.172	-0.0612
Australia & Japan	3.78*	0.653	0.379
With non-voting class	0.244	0.057	0.187
Voting rights ratio=10	0.816**	1.10***	0.890***
Voting rights ratio<10	0.124	-0.144	-0.519
Voting rights ratio>10	-0.946	0.808	0.257
Unification firms	1.45***	1.09***	1.15***

# Key takeaways

- Benefits of diversification. Benchmark portfolios tend to have better buy-and-hold returns than WVR firms.
- Market environment is important. There is a big difference across the markets.
- Firms dynamically optimize their voting right structure. There is no evidence against either initiation or termination of a WVR structure.

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# Characteristics of innovation financing (Hall, 2009)

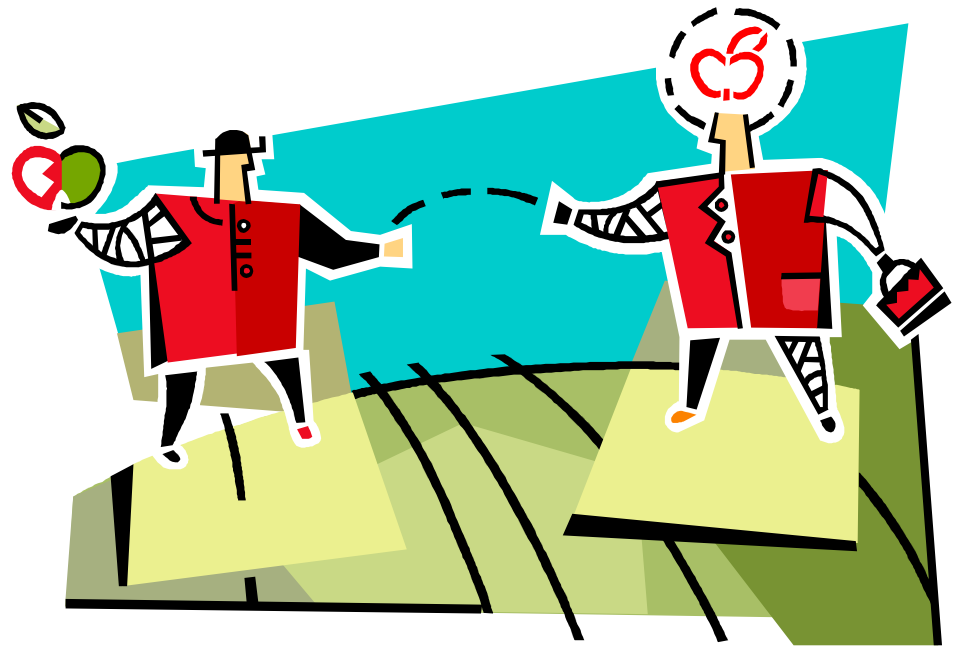
- Innovation progress is highly uncertain.
- Innovation outcome is firm-specific intangible assets with a limited resale market.
- Fund requirement is contingent on gradually revealed information.
- Continuous financing is necessary in order to keep valuable employees and their knowledge.



# WVR structure and firm innovation (Baran et al., 2017)

- A WVR structure has a positive effect in fostering innovation output (number of patent filings), quality (number of citations), and creativity (originality and generality)
- The effect declines with firm age.
- A WVR structure most benefits young innovative firms.

# Thank you



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