

## **WHITE PAPER**

# **THE RELEVANCE OF NON-FINANCIAL KEY PERFORMANCE INDICATORS (KPIs)**

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December 2019

## **ACKNOWLEDGMENTS**

The authors gratefully acknowledge the funding received for this research through the Professional Accounting Centre of the University of Toronto from Deloitte LLP and the Chartered Professional Accountants of Ontario.

The authors also acknowledge helpful comments from Len Brooks, Alan Donald, Steve Huddart, Linda Mezon, Stacey Nagle, Gordon Richardson, and participants in the Professional Accounting Center's board meeting of February 2019.

































































**Table 3: One-Year-Ahead ROA and KPI Indices**

VARIABLES	(1)	(2)	(3)	(4)
		One-Year-Ahead ROA		
Size	0.007*** (4.24)	0.007*** (4.34)	0.004 (1.47)	0.007*** (4.15)
Loss	0.007 (0.81)	0.007 (0.79)	0.008 (0.76)	0.007 (0.81)
ROA	1.025*** (25.48)	1.027*** (25.45)	1.005*** (12.25)	1.024*** (25.36)
ROA*Loss	-0.456*** (-6.45)	-0.458*** (-6.46)	-0.739*** (-6.39)	-0.455*** (-6.44)
K-Growth		-0.007 (-0.93)		
K-Efficiency			0.026*** (3.64)	
K-Total				0.006 (0.71)
Constant	-0.094*** (-6.00)	-0.092*** (-5.63)	-0.074*** (-2.87)	-0.096*** (-5.91)
Observations	1,933	1,908	823	1,933
Fixed Effects	Industry	Industry	Industry	Industry
Clustering	Firm	Firm	Firm	Firm
Adj. R-squared	0.705	0.705	0.493	0.705

Robust t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 4: Future Sales Growth and KPI Indices**

VARIABLES	(1) Sales Growth	(2) Sales Growth	(3) Sales Growth	(4) Sales Growth
Size	0.007 (0.92)	0.003 (0.40)	-0.009 (-0.88)	0.003 (0.42)
Sales	-0.000*** (-2.63)	-0.000** (-1.99)	-0.000 (-0.78)	-0.000** (-2.06)
K-Growth		0.089 (1.63)		
K-Efficiency			0.067*** (2.86)	
K-Total				0.091 (1.42)
Constant	0.016 (0.27)	-0.012 (-0.21)	0.084 (1.08)	-0.010 (-0.19)
Observations	1,933	1,908	823	1,933
Fixed Effects	Industry	Industry	Industry	Industry
Clustering	Firm	Firm	Firm	Firm
Adj. R-squared	-0.00143	0.000209	0.0383	-0.000426

Robust t-statistics in  
parentheses

\*\*\* p<0.01, \*\* p<0.05, \*  
p<0.1



**Table 5: Relation between Concurrent Returns and K Scores**

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Earnings/Lag Stock Price	0.000 (0.43)	0.000 (0.41)	0.001 (1.29)	0.000 (0.43)	0.000 (0.38)	0.000 (0.36)	0.001 (1.36)	0.000 (0.37)
ΔEarnings/Lag Stock Price	0.001*** (2.71)	0.001*** (2.63)	0.001*** (3.58)	0.001*** (2.71)	0.001** (2.06)	0.001** (2.00)	0.001*** (2.81)	0.001** (2.06)
K-Growth		-0.025 (-0.88)				-0.021 (-0.76)		
K-Efficiency			0.087** (2.50)				0.098*** (2.96)	
K-Total				-0.003 (-0.11)				0.003 (0.12)
Constant	0.091*** (7.56)	0.103*** (5.25)	0.030 (1.15)	0.093*** (4.64)	-0.014 (-1.22)	-0.004 (-0.24)	-0.083*** (-3.30)	-0.016 (-0.83)
Observations	1,933	1,907	822	1,933	1,933	1,907	822	1,933
Fixed Effects	Industry	Industry	Industry	Industry	Industry	Industry	Industry	Industry
Clustering	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm
Adj. R-squared	0.00381	0.00342	0.0276	0.00330	0.00186	0.00145	0.0231	0.00135

t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 6: One-Year-Ahead Returns and KPI Indices**

VARIABLES	(1)	(4)	(5)
	One-Year-Ahead Return		
Size	-0.008*	-0.010	-0.008*
	(-1.70)	(-1.19)	(-1.76)
ROA	0.114	-0.351*	0.114
	(1.44)	(-1.93)	(1.45)
BTM	0.044**	0.029	0.045*
	(1.97)	(0.85)	(1.96)
Momentum	0.046	0.032	0.043
	(1.56)	(0.89)	(1.48)
K-Growth	0.043		
	(1.43)		
K-Efficiency		0.021	
		(0.60)	
K-Total			0.043
			(1.26)
Constant	-0.017	0.008	-0.013
	(-0.44)	(0.10)	(-0.34)
Observations	1,908	823	1,933
Fixed Effects	Industry	Industry	Industry
Clustering	Firm	Firm	Firm
Adj. R-squared	0.0251	0.0563	0.0248

Robust t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 7 Return Predictability in Subsamples**

<b>Panel A: Return Predictability by Size</b>									
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Small Firms			Medium Firms			Large Firms		
Size	0.043 (1.17)	-0.095** (-2.23)	0.041 (1.15)	-0.000 (-0.01)	0.032 (0.69)	0.011 (0.37)	0.014* (1.71)	0.029** (2.41)	0.013 (1.60)
ROA	0.139 (1.07)	-0.359* (-1.94)	0.136 (1.05)	0.026 (0.14)	-0.785*** (-3.16)	0.002 (0.01)	-0.369* (-1.73)	-0.351 (-1.27)	-0.346* (-1.67)
BTM	0.048 (1.04)	0.071 (0.95)	0.048 (1.06)	0.100** (2.15)	0.048 (0.76)	0.097** (2.08)	-0.005 (-0.21)	0.006 (0.18)	-0.005 (-0.20)
Momentum	0.054 (1.02)	0.053 (0.49)	0.051 (0.99)	0.011 (0.27)	0.018 (0.35)	0.012 (0.30)	0.080* (1.96)	0.066 (1.24)	0.077* (1.93)
K-Growth	0.183* (1.80)			0.002 (0.04)			0.028 (0.98)		
K-Efficiency		0.404** (2.45)			-0.136** (-2.12)			0.062 (1.65)	
K-Total			0.220** (2.20)			-0.080 (-1.36)			0.045 (1.40)
Constant	-0.225 (-1.64)	0.102 (0.57)	-0.232* (-1.71)	-0.054 (-0.28)	-0.132 (-0.43)	-0.077 (-0.39)	-0.192** (-2.22)	-0.353*** (-2.83)	-0.192** (-2.22)
Observations	468	73	475	660	297	669	780	453	789
Fixed Effects	Industry	Industry	Industry	Industry	Industry	Industry	Industry	Industry	Industry
Clustering	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm
Adj. R-squared	0.0137	0.0691	0.0168	0.00584	0.0456	0.0101	0.119	0.146	0.121

Robust t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Panel B: Return Predictability by Analyst Coverage**

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	No Coverage			Low Coverage			High Coverage		
Size	-0.013 (-0.51)	-0.044 (-1.41)	-0.018 (-0.71)	-0.020 (-0.72)	0.014 (0.29)	-0.017 (-0.62)	-0.004 (-0.61)	-0.002 (-0.21)	-0.005 (-0.70)
ROA	-0.019 (-0.12)	-0.292 (-1.43)	-0.040 (-0.27)	0.098 (0.39)	-0.697 (-1.28)	0.110 (0.45)	0.108 (0.89)	-0.527** (-2.36)	0.109 (0.92)
BTM	0.078* (1.91)	0.085 (1.12)	0.089** (2.10)	0.055 (1.03)	0.021 (0.28)	0.058 (1.04)	0.056* (1.80)	0.039 (0.92)	0.054* (1.74)
Momentum	0.015 (0.20)	-0.049 (-0.44)	-0.001 (-0.01)	0.004 (0.07)	-0.003 (-0.03)	0.007 (0.12)	0.052 (1.47)	0.061 (1.41)	0.048 (1.36)
K-Growth	0.059 (0.86)			0.152** (2.10)			0.023 (0.60)		
K-Efficiency		0.309* (1.92)			0.047 (0.36)			-0.023 (-0.60)	
K-Total			0.155* (1.75)			0.134 (1.52)			0.010 (0.25)
Constant	-0.043 (-0.32)	0.014 (0.09)	-0.067 (-0.51)	-0.021 (-0.13)	-0.149 (-0.48)	-0.025 (-0.17)	-0.035 (-0.52)	-0.035 (-0.35)	-0.021 (-0.31)
Observations	162	54	162	267	104	276	1,479	665	1,495
Fixed Effects	Industry	Industry	Industry	Industry	Industry	Industry	Industry	Industry	Industry
Clustering	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm
Adj. R-squared	0.0244	0.0400	0.0417	-0.00959	-0.0184	-0.0107	0.0331	0.0739	0.0319

Robust t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Panel C: Return Predictability by Institutional Ownership**

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		Low IO			Medium IO			High IO	
Size	-0.035** (-2.28)	-0.057*** (-2.75)	-0.035** (-2.36)	-0.016* (-1.81)	-0.001 (-0.09)	-0.016* (-1.82)	0.019* (1.66)	0.006 (0.47)	0.018 (1.63)
ROA	0.159 (1.12)	-0.258 (-1.28)	0.162 (1.15)	-0.080 (-0.48)	-0.639** (-2.25)	-0.077 (-0.47)	-0.181 (-1.04)	-0.487* (-1.78)	-0.174 (-1.04)
BTM	0.073** (2.51)	0.025 (0.60)	0.079*** (2.68)	0.067 (1.36)	0.017 (0.25)	0.065 (1.32)	0.020 (0.40)	0.050 (0.77)	0.016 (0.33)
Momentum	0.034 (0.83)	-0.032 (-0.45)	0.031 (0.78)	0.041 (0.77)	0.088 (1.13)	0.038 (0.72)	0.020 (0.53)	0.029 (0.76)	0.018 (0.46)
K-Growth	0.119** (2.17)			0.016 (0.29)			0.043 (0.85)		
K-Efficiency		0.055 (0.84)			-0.085 (-1.31)			0.055 (1.12)	
K-Total			0.133** (2.09)			-0.000 (-0.00)			0.027 (0.51)
Constant	-0.002 (-0.02)	0.279 (1.65)	-0.004 (-0.05)	0.095 (1.14)	0.047 (0.35)	0.105 (1.27)	-0.211** (-2.07)	-0.148 (-1.19)	-0.192* (-1.94)
Observations	519	229	533	632	193	641	757	401	759
Fixed Effects	Industry	Industry	Industry	Industry	Industry	Industry	Industry	Industry	Industry
Clustering	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm
Adj. R-squared	0.0415	0.0970	0.0452	0.00929	0.0140	0.00914	0.0449	0.0718	0.0439

Robust t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 8: Returns to Trading Strategies based on KPI Indices**

<b>Panel A: Returns to Hedge Strategy based on K-Total</b>						
	Small Firms		No Coverage Firms		Low IO Firms	
	Mean	Obs	Mean	Obs	Mean	Obs
1	-7.69%	253	-6.37%	69	-13.96%	172
2	13.00%	140	-5.46%	44	-9.55%	185
3	6.87%	82	8.47%	49	-1.75%	176
3-1	14.56%		14.84%		12.21%	
t-stat	1.77		1.72		2.34	
p-value	0.0768		0.0874		0.0195	

<b>Panel B: Returns to Trading Strategy based on K-Efficiency</b>						
	Small Firms		No Coverage Firms		Low IO Firms	
	Mean	Obs	Mean	Obs	Mean	Obs
1	-18.30%	34	-12.11%	26	-9.99%	96
2		0	-10.33%	4	-13.69%	2
3	12.19%	39	16.23%	24	-4.71%	131
3-1	30.50%		28.34%		5.28%	
t-stat	2.07		1.94		0.87	
p-value	0.0412		0.0577		0.03832	

<b>Panel C: Returns to Trading Strategy based on K-Growth</b>						
	Small Firms		No Coverage Firms		Low IO Firms	
	Mean	Obs	Mean	Obs	Mean	Obs
1	-6.76%	258	-2.28%	79	-13.79%	195
2	12.78%	125	-13.04%	24	-11.04%	113
3	6.42%	85	3.86%	59	-3.32%	211
3-1	13.19%		6.13%		10.47%	
t-stat	1.65		0.78		2.24	
p-value	0.0993		0.4335		0.0254	

**Table 9: Hedge Returns Across Time****Panel A: Hedge Return Based on K-Total across Time**

Small Firms					
Year	#Long	#Short	Long Return	Short Return	Hedge Return
2011	15	39	12.12%	-5.72%	17.84%
2012	13	32	8.31%	16.54%	-8.23%
2013	11	38	-1.76%	-2.29%	0.53%
2014	15	48	-5.17%	-23.07%	17.90%
2015	14	49	19.17%	-15.96%	35.13%
2016	14	47	7.29%	-5.84%	13.13%
Mean Hedge Returns				12.72%	
SD of Hedge Returns				15.12%	
Sharpe Ratio				0.84	
No Coverage Firms					
Year	#Long	#Short	Long Return	Short Return	Hedge Return
2011	25	12	6.38%	-7.80%	14.18%
2012	23	6	18.79%	-14.15%	32.94%
2013	28	12	-24.01%	-22.20%	-1.81%
2014	27	8	4.75%	-22.04%	26.79%
2015	27	15	10.77%	3.29%	7.48%
2016	32	16	21.27%	8.26%	13.01%
Mean Hedge Returns				15.43%	
SD of Hedge Returns				12.68%	
Sharpe Ratio				1.22	
Low IO Firms					
Year	#Long	#Short	Long Return	Short Return	Hedge Return
2011	79	24	4.57%	1.11%	3.46%
2012	80	16	1.96%	-15.44%	17.40%
2013	77	23	-5.76%	-19.65%	13.89%
2014	93	28	-14.23%	-24.38%	10.15%
2015	103	37	-4.88%	-25.38%	20.50%
2016	101	44	14.36%	-2.44%	16.80%
Mean Hedge Returns				13.70%	
SD of Hedge Returns				6.12%	
Sharpe Ratio				2.24	

**Panel B: Hedge Return Based on K-Efficiency Across Time**

Small Firms					
Year	#Long	#Short	Long Return	Short Return	Hedge Return
2011	18	9	4.90%	-28.70%	33.60%
2012	17	5	53.16%	27.82%	25.34%
2013	10	7	-21.99%	-37.89%	15.90%
2014	9	4	6.94%	-27.03%	33.97%
2015	12	5	-19.13%	-13.09%	-6.04%
2016	3	4	-13.77%	-16.08%	2.30%
Mean Hedge Returns				17.51%	
SD of Hedge Returns				16.61%	
Sharpe Ratio				1.05	
No Coverage Firms					
Year	#Long	#Short	Long Return	Short Return	Hedge Return
2011	3	4	45.11%	-12.52%	57.62%
2012	7	2	42.09%	-6.90%	48.99%
2013	3	8	-39.00%	-19.16%	-19.85%
2014	2	5	1.22%	-42.38%	43.60%
2015	4	2	27.04%	31.29%	-4.24%
2016	5	26	-6.80%	10.34%	-17.14%
Mean Hedge Returns				18.17%	
SD of Hedge Returns				35.63%	
Sharpe Ratio				0.51	
Low IO Firms					
Year	#Long	#Short	Long Return	Short Return	Hedge Return
2011	17	21	5.08%	3.30%	1.78%
2012	28	11	10.36%	-18.82%	29.18%
2013	20	18	-14.58%	-33.27%	18.69%
2014	23	18	-15.53%	-18.19%	2.66%
2015	23	14	-5.69%	4.68%	-10.37%
2016	20	14	-10.66%	2.85%	-13.51%
Mean Hedge Returns				4.74%	
SD of Hedge Returns				16.53%	
Sharpe Ratio				0.29	



**Panel C: Hedge Return Based on K-Growth Across Time**

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Small Firms

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Year	#Long	#Short	Long Return	Short Return	Hedge Return
2011	15	44	15.90%	-2.54%	18.44%
2012	12	34	6.37%	15.10%	-8.73%
2013	13	37	-2.73%	-1.71%	-1.02%
2014	16	47	-5.35%	-24.21%	18.86%
2015	14	49	19.17%	-15.40%	34.57%
2016	15	47	5.60%	-4.04%	9.64%

Mean Hedge Returns                                    11.96%  
SD of Hedge Returns                                   15.51%  
Sharpe Ratio     0.77

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No Coverage Firms

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Year	#Long	#Short	Long Return	Short Return	Hedge Return
2011	7	14	-0.49%	0.16%	-0.65%
2012	11	9	18.79%	-6.29%	25.08%
2013	9	12	-19.02%	-22.20%	3.18%
2014	14	8	-6.83%	-22.04%	15.21%
2015	7	18	10.77%	8.72%	2.05%
2016	11	18	19.63%	8.91%	10.72%

Mean Hedge Returns                                    9.26%  
SD of Hedge Returns                                   9.75%  
Sharpe Ratio     0.95

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Low IO Firms

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Year	#Long	#Short	Long Return	Short Return	Hedge Return
2011	31	25	9.93%	0.02%	9.91%
2012	35	21	-3.79%	-13.29%	9.50%
2013	30	24	-9.72%	-19.33%	9.61%
2014	44	29	-19.06%	-29.85%	10.79%
2015	43	42	-2.20%	-19.88%	17.68%
2016	28	54	12.44%	-4.56%	17.00%

Mean Hedge Returns                                    12.41%  
SD of Hedge Returns                                   3.85%  
Sharpe Ratio     3.23

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