+corporate entities. Enterprises like financial institutions, technology companies, and retail firms have extended their presence to all parts of the world and have firmly positioned themselves as integral parts of the social, political, and economic make-up of modern civilization. Consequently, privacy, information related to these firms is of great value to all members

provide theoretically-sound answer to these questions; instead, this paper
+'(" '/,#(4#-"&"61#"2364&"#/+55"&" '(#5)$(4&,#&"6)(" /#(4#(!"#BGH#/" -4*&)3!+$#
using various statistical techniques. Specifcally, this paper will explore (1)
7)&+4%,#5)$(4&,#)55"$(+'*#BGH#$4-3"',)(+4'>#?PD#)#$4-3)&+,4'#0"(J""'#
CEO and non-CEO income, (3) issues associated with gender equality, and
?SD#*"'"&)6#3"&54&-)'$"#45#$4-3)'+",#+'#(!"#TU=#VMM>#J!+$!#$4',(+(%(",#)#
$466"$(+4'#45#(!"#VMM#-4,(#7)6%)06"#$4-3)'+",#+'#(!"#WT8
The dataset (see Appendix G) used in this paper was acquired from

income inequality, I compare the median personal income in the USA with (!"# - "/+) '#+'$4 - "#45#(!"#/)()#,"(8#E#%,"#(!"# - "/+) '#+',(") /#45#(!"# - ") '# 0"$)%,"#+'$4 - ",#)&"#(&) /+(+4') 66 1#$+("/#%,+'*#(!"+&# - "/+) '#7)6%",8#K!+,#+,# /%"#(4#(!"# - "/+) '#0"+'*#)#5)&#6",,#,"',+(+7"#3)&) - "("&#(!) '#(!"# - ") '#) '/# (!"&"54&"#6",,#)55"$("/#01#4%(6+"&,8#K!"#&) '*"#45#+'$4 - ",#+'#(!"#/)(),"(#+,Y# ?\O>#\LRM>MOP>XSSD[#(!"&"54&"[#%,+'*#(!"# - "/+) '#+,#'"$",,)&18#E#3"&54& - # (!+,#) ')61,+,#%,+'*#(!"#9+6$424'#T+*'#K",(>#(!"#$)6$%6)(+4'#/+,36)1"/#0"64J8# K!+,#(",(#$4 - 3)&",#) '/#&) '.,#(!"# - "/+) ',#0"(J""'#(J4#343%6)(+4'#*&4%3,8# E'#PMOQ>#(!"# - "/+) '#3"&,4')6#+'$4 - "#+'#(!"#WT#J),#\XO>MLL8X

]M: m = 31,099
]O: m > 31,099, where m = median CEO compensation
Consequently, Y+ = x+ – 31,099, where x+ = each individual $4 - 3"',)(+4'8

W = (-3) + 60028 = 60025

Consequently:

And the subsequent p-value = P (Z ≥ 16.119) ≈ 0. Therefore, there is ,()(+,(+$)6#"7+/"'$"#(4#&"F"$(#(!"#'%66#!134(!",+,#?]M) at every signifcance 6"7"68#G,,"'(+)661>#(!"# - "/+) '# TU=# BGH#+'$4 - "#/4",#"2$""/#(!)(#45# (!"#')(+4')6# - "/+) '8#@4&#+'("&",(:,#,) ."># (!"# - "/+) '#45#(!"#,) - 36"#+,Y# \OO>S^O>MQO#J!+$!#+,#)33&42+ -)("61#XQR8RQ#(+ - ",#6)&*"&#(!) '#(!"#') (+4') 6# - "/+) '8#C6,4>#(!"#LV#3"&$"'(#BE#54&#(!"# - ") '#+'$4 - "#+,Y

#	#	#	#
#	#	#	######># J ! "&"#2 = $12,769,269.00

which equals = ($11,890,886.77; $13,647,651.23); therefore, I can be 95 percent confdent that the average value of CEO income is within this &) '*"8

Change in compensation = f(tsr) + μ, where μ ~ N(0, σ^{PD}>#E# have already confrmed that the variables are random and /+,(&+O%("/#'4& -)661&

C33"'/+2#b#,!4J,#(!"#&",%6(,8#K!"#&"*&",,+4'#6+'"#?C33"'/+2#BD#+,Y

Change = 0.876224 + 0.2094612

This regression is statistically reasonable because the confdence interval for β (0.0223323,0.3965901) does not include zero at the fve-percent signifcance level. This implies that in 95 percent of cases, tsr has the)047"#+-3)$(#4'#$!)'*",#+'#$4 - 3"',)(+4'8#C6,4>#C33"'/+2#<#,!4J,#(!"#7)&+4%,#,$)(("&3644(,#45#(!"#&",+/%)6,#)*)+',(#(,&#)'/#$!)'*"#7)6%",8#C66#3644(,#,!4J#)#&)'/4-#,$)(("&#J+(!#'4#/+,$"&')06"#3)(("&'#)04%(#(!"#6+'"#y = 0 with most points between y = ± 3; therefore, I can confrm that each /)()#34+'(#7)&+",#J+(!#*&")(#,+-+6)&+(1#5&4 - #(!"#)7"&)*"#"55"$(#45#(,&#)'/#(!)(#(!"&"#+,#'4#)%(4$4&&"6)(+4'#J+(!#&"*)&/,#(4#(!"#"&&4&#("&-,8#E#$)'#)6,4#ascertain that α and β are distributed normally in accordance with the ')(%&"#45#(!"#6+'")&#&"*&",,+4'#-4/"68#K!"#-4/"6#"236)+',#(!)(#)'#+'$&")," ++'#(,&#45#4'"#3"&$"'(#&",%6(,#+'#)'#+'$&"),"#45#M8MMPMLV#3"&$"'(#+'#BGH#compensation, all else equal. This result makes sense and is signifcant at the fve-percent signifcance level but not at the one percent level since its p-value is 0.028. The model has a correlation coeffcient of 0.0139; (!"&"54&">#4'61#O8XL#3"&$"'(#45#(!"#7)&+)(+4'#+'#$!)'*"#+,#"236)+'"/#01#(,&#—this is demonstrated by the regression line shown in Appendix C with the /)()#34+'(,#,3&")/#4%(#J+/"61#)3)&(#5&4 - #(!"#&"*&",,+4'#6+'"8##K!+,#+,#)#64J#7)6%"#J!+$!#+ - 36+",#(!)(#4(!"&#5)$(4&,#),+/"#5&4 - #,!)&"!46/"&#7)6%"#+ - 3)$(#)#BGH:,#$4 - 3"',)(+4'8

Industry-Speciýc

Average S&P CEO income could be affected by the industry that the frm 0"64'*,#(48#K!"#,) - 36"#+'$6%/",#"'+*!(#+'/%,(&+",Y#0),+$#-)("&+)6,>#$4',% - "&#goods, fnancial, healthcare, industrial goods, service, technology, and %(+6+(+",8#K4#(",(#(!"#&"6)(+4',!+3#0"(J""'#+'/%,(&1#)'/#-")'#+'$4 - ">#E#%(+6+!"#)#4'"A5)$(4&#CaHcC#(",(># J!+$!#$4 - 3)&",#(!"#)7"&)*",#)$&4,,#(!"#343%6)(+4'#*&4%3,8#E#$)'#%(+6+!"#(!+,#("(#01#),%-+'*#(!)(#+'$4 - ",#)$&4,,#+'/%,(&+",#?2¸D#)&"#/+,(&+0%("/#'4&-)661Y#2¸ ~ N(μ¸, σ^{PD}#)'/#(!)(#")$!#2¸#+,#+'/"3"'/"'(#45#4(!"&,8#@4&#(!"#/)(),"(>#+(#+,#&"),4')06"#(4#3&",%-"#+'/"3"'/"'$"#,+'$"#(!"&"#+,#'4#&"),4'#(4#0"6+"7"#(!)(#(!"#+'$4 - "#45#4'"#BGH#,!4%6/#)55"$(#)'4(!"&8

]$_M$: μ$_{b}$ = μ$_{@}$ = μ$_{B}$ = μ$_{]}$ = μ$_{ţ}$ = μ$_{T}$ = μ$_{K}$ = μ$_{W}$
]$_O$: Not all μ¸'s equal

@&4 - # C33" ' / +2# G># (! " # @A , () (# ?OL8LQQD# d# B&+(+$) 6# 7) 6%" # ?X8VD# (! " & "54& " # E#
can reject the null hypothesis at the fve percent signifcance level. The
3A7) 6%" # + , # 7" &1# , -) 66# ?M8MMMORD[# (! " & "54& ">#E# $) ' # " , , " ' (+) 661# & "F"$(# (! " #
null hypothesis at all signifcance levels. Hence, mean incomes do vary
) $&4 , , #+ ' / % , (&+" , >#+ - 361+ ' *#(!) (#BGH#$4 - 3" ' ,) (+4 ' , #) & " #) 55"$(" / #O1#(! " +&#
& " , 3"$(+7" #+ ' / % , (&+" , 8

State-Speciýc

E# 3"&54& - #) ' 4(! " &# 4 ' "A5) $(4&# CaHcC# (" , (# (4# / "(" & - + ' " # J ! "(! " &# 64$) (+4 ' #
) $&4 , , # (! " # WT#) 55"$(, # - ") ' # TU=# BGH# $4 - 3" ' ,) (+4 ' 8# K ! " # 3&"7+4% , #
) , , % - 3(+4 ' , # , (+66#) 33618#K ! +&(1A , "7" ' # , () (" , #) & "#& "3& " , " ' (" / Y

$] _M$: $\mu_{CeCbC`C} = \mu_{CfgCaTCT} = \ldots = \mu_{9ETBHaTEa}$

$] _O$: Not all μ_+'s equal

@&4 - #C33" ' / +2#@>#(! " #@A , () (#?OO8^^D#d#B&+(+$) 6#7) 6%" #?O8^XD#(! " & "54& " #E#$) ' #
reject the null hypothesis at the fve percent signifcance level. The p-value
+ , #+ ' $& " / +O61# , -) 66#?R8LP#2#OM^AOP^D[#(! " & "54& " [#E#$) ' # "55"$(+7" 61#& "F"$(#(! " # ' %66#
hypothesis at all signifcance levels. Hence, mean incomes do vary across
' "A5) $(4&#) (" , (CJa!$c#) 7 33C (C) 1(14$") (4 '4 / 4#" , #) 55"$(#M / ! #+ - 367) 6%" #?O8^XD#

tœa ᵀ ʊ ɿ ȳ˛ l e o Ă

and 8.585 percent; therefore, there is suffcient evidence to reject the null hypothesis at the fve-percent signifcance level. In sum, women are %' / "&&"3&" , " '(" /#+'#BGH#34 ,+(+4 ' ,#) - 4 ' * ,(#TU=#VMM#$4 - 3) '+" ,8

K4#(" ,(#54&#(! "#*" ' / "&#J) * "#*) 3#) ' /#+' 7" ,(+*)(" #+5# - " '#") &' # - 4&">#E#%(+6+I "# (! "#54664J+' *#(" ,(#,() (+,(+$Y

$\overline{y} - \overline{x}$ # ##########>#J ! "&"#

n = number of male CEOs
m= number of female CEOs

E#%, "#(!+,#(" ,(#,() (+,(+$#0"$) %, "#+'$4 - " ,#54&#04(!#*" ' / "&,#$) '#0"#) , ,% - " /# (4# 0"# /+,(&+0%(" /# '4& -) 6618# C6,4>#+(# , "" - ,# &") ,4 ') 06"# (4# 3&" ,% - "# (!)(# compensation levels between male and females CEOs varies equally. C/ /+(+4 ') 661># - #+,#' 4(#6) &*"#J !+$! #+,#+ - 34&() '(#54&#(!+,#) , ,% - 3(+4 '8

2 (mean male income) = $12,648,009.79
ȳ (mean female income) = $14,488,643.29
$,_2^P$ = 7.0320 x $10^{OX\#}$
$,_1^P$= 5.6196 x $10^{OX\#}$

$]_M$: $\mu_@ = \mu_、$
$]_O$: $\mu_、 > \mu_@$
$(_{M8MV}^{XSS}$ = 1.649

T = - 0.981 < 1.649; therefore, there is insuffcient evidence to reject the null hypothesis at the fve-percent signifcance level.
P-value = P(t ≥ 0.981) = 0.1636 → It is only possible to reject the null hypothesis at the 17 percent signifcance level or higher.
K! "'$">#E#$4 '$6%/ "#(!)(#(! "&"# /4" ,#' 4(# "2+,(#)# *" ' / "&# 3)1# *)3#) - 4 ' *,(#TU=#BGH ,[#+'#5)$(>#(! "#,) - 36"#, !4J ,#5" -)6" ,# ")&'+' *# - 4&"#(!) '# -)6", >#4 '#)7"&) *"8

After concluding that I cannot statistically observe any signifcant /+,$&"3) '$1#+'#+'$4 - " ,#0"(J "" '# -)6"#) ' /#5" -)6"# BGH ,>#E# - 47"#(4# determining if there is any signifcant difference in a company's performance ? - ") ,%&" /#01#(,&D#0"(J "" '# -)6"A#) ' /#5" -)6"A6" /#$4 - 3) '+" ,8#C*)+' >#E#$) '#

%, "#(!"#54664J+'*#(",(#,()(+,(+$Y

$\bar{y}_1 - \bar{y}_2$ >##J!"&"# $\sqrt{(n-1)s_1^2+(m-1)s_2^2}$

n = number of companies with male CEOs;
m= number of companies with female CEOs
]M: μF = μM
]O: μF ≠ μM
(M.025344 = 1.649

2 = 0.1599
ȳ = 0.2767
,2P = 0.02514
,1P= 0.07883

|T| = 3.09 > 1.9669 therefore, there is suffcient evidence to reject the null hypothesis at the fve-percent signifcance level.

P-value = P (t ≥ 3.09) = 0.0022 → It is only possible to reject the null hypothesis at 0.22 percent signifcance level or higher.
K!"'$">#5&4-#(!"#(",(>#E#$)'#$4'$6%/"#(!)(#TU=#$4-3)'+",#3"&54&-"/#/+55"&"'(61#/"3"'/+'*#4'#(!"#*"'/"&#45#(!"#BGH[#')-"61>#$4-3)'+",#6"/#01#-)6"#BGH,#("'/"/#(4#3"&54&-#0"((""&8

Are Compensations Justiẏed?

e),(61>#E#(%&'#(4#)#-)$&4"$4'4-+$#4%(644.#)'/#$4',+/"&#(!"#47"&)66#3"&54&-)'$"#45#(!"#$4-3)'+",#+'#(!"#/)(),"(8#E'#PMOV#)'/#PMOQ>#(!"#TU=#VMM#,(4$.#+'/"2#*&"J#,%O,()'(+)6618#;+7"'#(!"#6)&*"#$4-3"',)(+4',#(!)(#(!",#BGH,#(13+$)661#&"$"+7"/>#+(#+,#J4&(!J!+6"#(4#(",(#+5#(!"+&#$4-3)'+",#3"&54&-"/#J"66#+'#4&/"&#(4#"7)6%)("#+5#(!",#6)&*"#$4-3"',)(+4',#)&"#justifed.

]M: p = 0.5
]O: p ≠ 0.5 , where p̂ = proportion of companies with
34,+(+7"#(,&#7)6%",8

hha4("Y#E#%,"#M8VM#/%"#(4#(!"#I"&4A,%-#*)-"#')(%&"#45#(!"#,(4$.#-)&."(#?+8"8#54&#"7"&1#J+'''&#(!"&"#"2+,(,#)#64,"&D8

$$\hat{p} = \frac{261}{346} = 0.75434$$

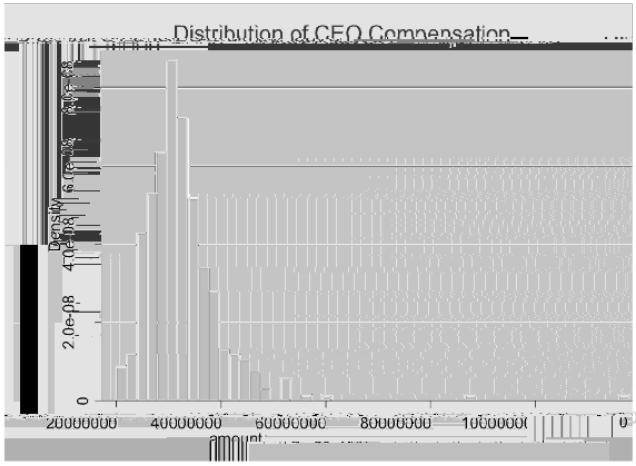
!=###$%&'()&'*&

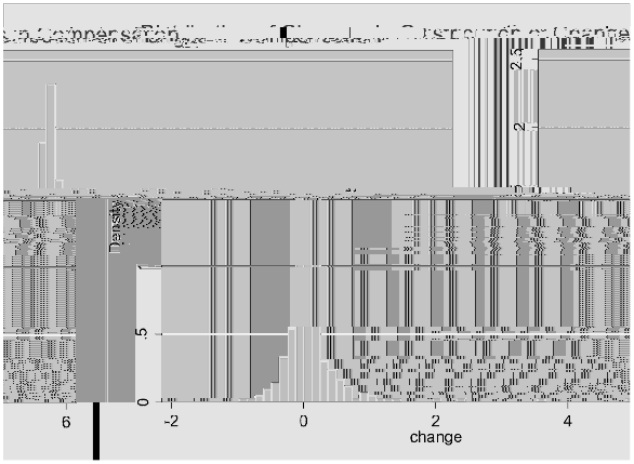
$$0.75434 \pm 1.96 \sqrt{\phantom{\frac{0.75434(1-0.75434)}{1000}}} = (0.70898;0.7997)$$

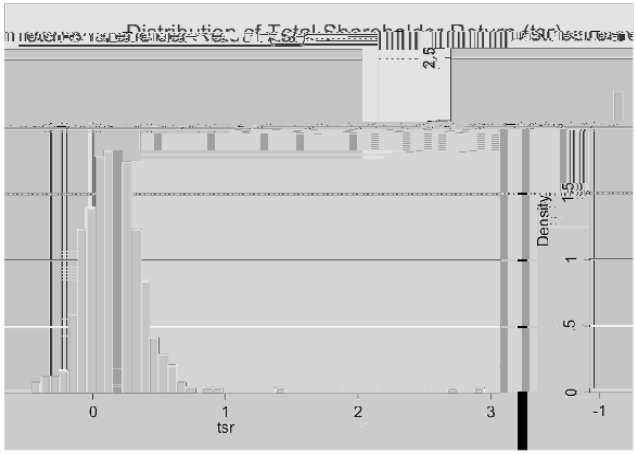
#

I can be 95 percent confident that 70.9 percent to 79.97 percent of companies
+'#(!"#TU=#VMM#!)/#34,+(+7"#,(4$.#3&+$"#*&4J(!>#J!+$!#%6(+-)("61#)6+*',#J+(!#
market trends. Thus, large compensations appear to be justified.

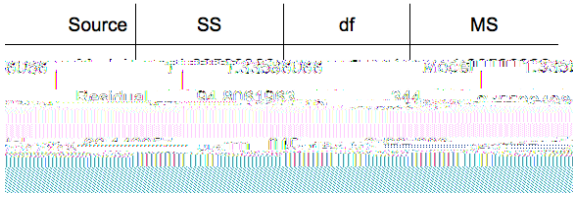
E#J"'(#(!&4%*!#,"7"&)6#3&4$"/%&",#(",(+'*#)7"&)*"#TU=#BGH#$4-3"',)(+4'>#
",,"'(+)661#(",(+'*#(!"#0),+,#54&#(!"+&#+'$4-",8#K!"#&",%6(,#J"&"Y#BGH,#
)&"#$4-3"',)("/#5)&#-4&"#(!)'#)7"&)*"#J4&."&,[#,4-"#+'/%,(&+",#)'/#
64$)(+4',#)&"#),,4$+)("/#J+(!#!+*!"&#$4-3"',)(+4'#3)$.)*",[#J4-"'#)&"#)#
-+'4&+(1#+'#BGH#34,+(+4',#0%(#(!"1#)&"#'4(#%'/"&3)+/[#!4J"7"&>#$4-3)'+",#
J+(!#-)6"#BGH,#,""-#(4#!)7"#3"&54&-"/#0"(("&#(!)'#(!4,"#J+(!#5"-)6"#
BGH,8#C//+(+4')661>#E#,)J#(!)(#$4-3)'+",#3"&54&-"/#J"66#/%&+'*#(!",#
years, and technology firms seemed to have outperformed service firms
01#)#,-)66#-)&*+'8#E(#+,#+-34&()'(#(4#&"$4*'+I"#(!)(#(!",#$4'$6%,+4',#)&"#
)33&43&+)("#54&#TU=#VMM#$4-3)'+",>#'4(#54&#)66#$4-3)'+",8#C6,4>#(!",#
$4'$6%,+4',#)&"#0),"/#4'#,()(+,(+$)6#)')61,",#(!)(#)&"#!+*!1#/"3"/"'(#
4'#(!"#,)-36"#45#/)()#%,"/[#(!"&54&">#(!",#&",%6(,#)&"#)6J)1,#43"'#(4#
statistical error and bias. Further studies in this area might include firms
5&4-#4%(,+/"#(!"#TU=#VMM#)'/#-)1#644.#)(#)//+(+4')6#5)$(4&,#6+."#BGH#
"23"&+"'$">#)*">#"/%$)(+4'>#)'/#&")(+4'#(4#BGH#$4-3"',)(+4'#3)$.)*",8#
e),(61>#)'1#"&&4&,>#,()(+,(+$)6#4&#4(!"&J+,">#)&"#-1#4J'8

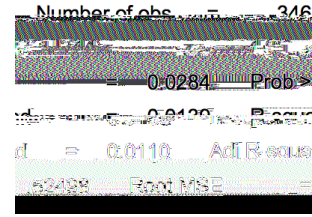

Distribution of CEO Compensation
Density
0
2.0e-08
4.0e-08
6.0e-08
0
20000000
40000000
60000000
80000000
100000000

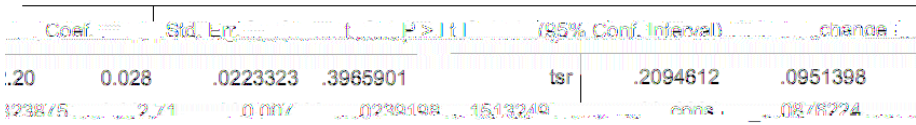

Density
0
.5
2
2.5
6
-2
0
2
4
change

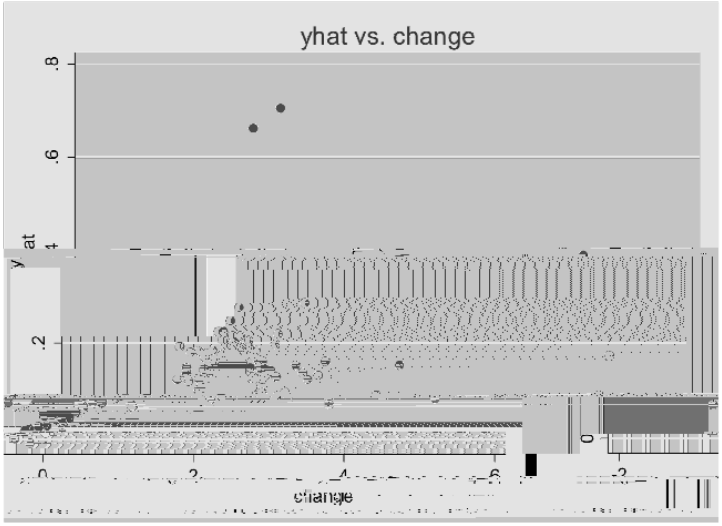

Distribution of Total Shareholder Return (tsr)
Density
0
.5
1
1.5
2.5
0
1
2
3
-1
tsr

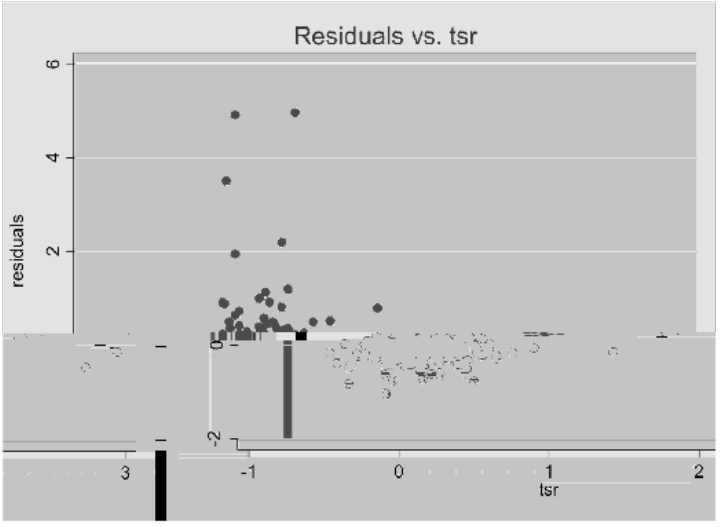
! B###$%& ' ()& ' *&


Source
SS
df
MS
Residual


Number of obs
346
0.0284
Prob > F
0.0110
Adj R-squared
Root MSE


Coef.
Std. Err.
t
P>|t|
[95% Conf. Interval]
.20
0.028
.0223323
.3965901
tsr
.2094612
.0951398

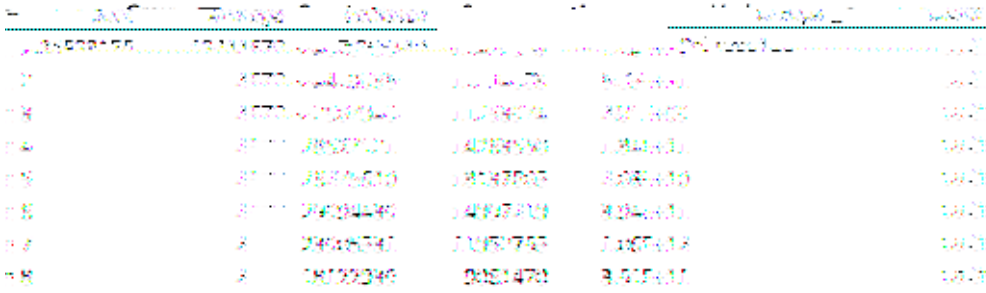

yhat vs. change
.8
.6
.4
.2
0
change

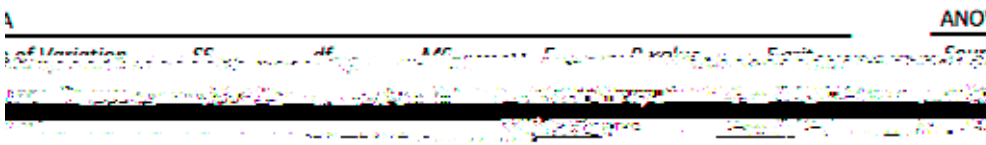

Residuals vs. tsr
residuals
6
4
2
0
-2
-1
0
1
2
tsr

?"###$%&'()&'*&

Anova: Single Factor

SUMMARY





	Total	4.96E+13	15

>/ 8 .$1###?;