!!

!

!

!

!

!

!

!

Department of
Economics and Finance

–. " #$%&'(!)*+,$!-#.!/01//!

A8(9&,9;#!B*$&*!C*+#$*9,D!!E8&<!F.!A&91F9*'*!*'>!!C*$9#<!
)#G*!

!

),$<&<3,':,D!-#'1E&',*$&3&,<!*'>!@3$8:38$*9!H$,*%<!

&'!=8$#+,*'!@3#:%!B*$%,3!I'>&:,<!

!

F+$&9!JK/0!!

=:#'#;&:<!*'>!?&'*',:,!"#$%&'(!)*+,$!@,$&,<!

! 233+455666.7$8',9.*:.8%5,:#'#;&:<!

!

!

! !

!

"#$%&%'#()#*!(+(,-&(#.$&'&#%!.(/!%'$0)'0$.-!1$#.2%!!

&(!#0$+"#.(!%'+)2!3.$2#'!&(/&)#%!

!

456789 7 :;!3<=8<!)<>;=<79*!1=5?97!0?8@9=A8BC!-;?D;?*!0?8B9D!28?6D;:!

-58A!.E!487,.7<?<*!0?8@9=A8BC!;F!(<@<==<*!"<:>7;?<*!%><8?!

)<=7;A!";G<*!0?8@9=A8BC!H=<?I8AI;!D9!J8B;=8<*!3<D=8D*!%><8?!

!

.>=87!KLMN!!

!

.OAB=<IB!

!"#$%&'&()%(*'+#,($%&()$#$-(,.(/%$-)0.-0)'1%2)('3$%',4%,5,61#,(')#-#($%#,%-"(%.'$(%57%7#8(%

90)5&(',%$-5.3%+')3(-%#,4#.($/%,'+(1:%-"(%;!<9=>>%?@AB/%CDEF>%?G()+',:B/%HDHI>%

?;)',.(B/%JK9EFL%?<&'#,B%',4%;!<9%MJKI>%?J-'1:B/%0$#,N%7)'.-#5,'1%#,-(N)'-#5,%+(-"54$0%!"(%

(+&#)#.'1%)($01-$%&)58#4(%,5%(8#4(,.(%57%,5,61#,(')#-#($%#,%(#-"()%&)#.($%5)%)(-0),$P%-"(%75)+()%

')(%750,4%-5%(*"#2#-%0,#-%)55-$%',4%-"(%1'--()%-5%2(%J?>B%#,%+5$-%.'$($0%;0)-"()/%2(-Q((,%R%',4%I%

$-)0.-0)'1%2)('3$%')(%750,4%75)%('."%57%-"(%)(-0),%$()#($/%',4%+(',%)(8()$#5,%#,%$5+(%

02'+&1($0%%

%

29CP;=DAQ!

!

!"(% 977#.#(,-% M')3(-% V:&5-"($#$% ?9MVB% #$% $-#11% -"(% 45+#,',-% &')'4#N+% -5% ','1:$(% -"(%
2("'8#50)%57%'$$(-%&)#.($%?$((%;'+'/%=][>B0%J-$%#+&1#.'-#5,%#$%-"'-%&)#.($%$"5014%75115Q%'%)',45+%
Q'13/%',4%-"()(75)(%-"(%5)4()%57%#,-(N)'-#5,%57%-"(%15N%&)#.($%$()#($%$"5014%2(%5,(0%J,%#-$%Q('3%
75)+%#-%$-'-($%-"'-%#-%$"5014%,5-%2(%&5$$#21(%-5%-)'4(%&)57#-'21:%5,%-"(%2'$#$%57%"#$-5)#.'1%&)#.($%
',4^5)%)(-0),%#,75)+'-#5,0%!"#$%":&5-"($#$%"'$%2((,%-($-(4%#,%,0+()50$%(+&#)#.'1%$-04#($%
(*'+#,#,N%-"(%5)4()%57%?7)'.-#5,'1B%#,-(N)'-#5,%57%-"(%&)#.(%$()#($%'$%Q(11%'$%&()$#$-(,.(%',4%
+(',%)(8()$#5,%?$((/%(0N0/%K55-"%(-%'10/%=]SRP%T(-()$/%=]S]P%H'&5)'1(%',4%G#16D1','/%R>=I/%(-.0B/%
',4%'1$5%-"(%&5$$#21(%&)($(,.(%57%$-)0.-0)'1%2)('3$%?$((/%(0N0/%_0-"',%',4%<0-"'Q',/%R>=RB0%%
!"(%+(-"54$%0$(4%

57%',%'44#-#5,'1%`I>%2#11#5,%Q5)-"%57%.58()(4%25,4$0%!"(%9HK%'1$5%#,-)540.(4%#,%M':%R>=>%#-$%

<(.0)#-#($%M')3(-$%T)5N)'++(%?<MTB%'#+(4%'-%(,$0)#,N%-"(%70,.-#5,#,N%57%-"(%+5,(-'):%&

T5-()2'%',4%U'Q)(,.(%?=]SaB%750,4%-"'-%851'-#1#-:%#$%5,1:%Q('31:%$()#'11:%.5))(1'-(4/%#+&1:#,N%-"'-%$"5.3$%-5%851'-#1#-:%45%,5-%&()$#$-%',4%'77(.-%)(-0),$%5,1:%75)%)(1'-#8(1:%$"5)-%#,-()8'1$/%Q"#."%#+&1#($%-"'-%-"(%&55)%&()75)+',.(%57%$-5.3%&)#.($%40)#,N%-"(%=][>$%.',,5-%2(%'--)#20-(4%-5%851'-#1#-:6#,40.(4%#,.)('$($%#,%)#$3%&)(+#'0%V#,#."%',4%T'--()$5,%?=]SLB%750,4%,5,61#,(')#-#($%#,%-"(%4'#1:%)'-($%57%)(-0),%57%=L%.5++5,%-5.3%0$#,N%'%+(-"54%2'$(4%5,%-"(%2#$&(.-)0+0%V5401'%',4%K#.3i)%?R>=aB%($-#+'-(4%$+'11%$.'1(%K':($#',%+54(1$%-5%(*'+#,(%-"(%)($&5,$($%-5%$(8()'1%+'.)5(.5,5+#.%8')#'21($%57%-"(%G()+',%CDE%F>%',4%-"(%K)#-#$"%;!<9%=>>%#,4#.($P%-"(:%750,4%-"'-%-"(%K j D \%+54(1%50-&()75)+$%'%$-',4')4% j D \%+54(1/%Q#-"%-"(%75)(.'$-#,N%'..0)'.:%#+&)58#,N%7)5+%L k%-5%=R k/%',4%-"'-%-"(%)#$3%&)(+#0+%"'$%'%,(N'-#8(%(77(.-0%A#+%(-%'10%?R>==B%.5,$#4()(4%-"(%5,(6+#,0-(%$()#($%75)%-"(%A5)(',%$-5.3%+')3(-%#,4(*%

.')):#,N%50-%-"(%K'#%',4%T())5,g$%?R>>FB%2)('3%-($-$P%-"(:%750,4%-Q5%2)('3$%#,%-"(%+(',%57%-"(%.5,4#-#5,'1%851'-#1#-:%57%25-"%4'#1:%',4%+5,-"1:%)(-0),$/%Q"#."%+5$-%1#3(1:%')(%'%.5,$(c0(,.(%57%&51#.:%',4%)(N01'-#5,%."',N($%)'-"()%-"',%(.5,5+#.%.)#$($0%M("+(-%(-%'10%?R>=LB%#,8($-#N'-(4%Q"(-"()%-"(%4'#1:%$-5.3%&)#.(%#,4#.($%7)5+%=I%(+()N#,N%+')3(-$%75115Q%'%)',45+%Q'13%5)%'%+(',6)(8()-#,N%15,N6+(+5):%&)5.($$P%-"(#)%7)'+(Q5)3%75)%',':1:$#,N%&()$#$-(,.(%#$%+5)(%N(,()'1%-"',%-"(%J?>B^J?=B%&')'4#N+%',4%'115Q$%75)%+01-#&1(%$-)0.-0)'1%2)('3$%'-%0,3,5Q,%4'-($0%!"(:%750,4%$0&&5)-%75)%-"(%)',45+%Q'13%":&5-"($#$%75)%'11%$-5.3%+')3(-$%(*.(&-%750)%75)%Q"#."%Q('3%(8#4(,.(%57%+(',6)(8()-#,N%15,N6+(+5):%2("'8#50)%Q'$%52-'#,(4P%0,#-%)55-$%Q()(%750,4%#,%'11%.'$($%(*.(&-%M(*#.5%(8(,%Q"(,%$-)0.-0)'1%2)('3$%Q()(%-'3(,%#,-5%'..50,-0%J,%5)4()%-5%."(.3%-"(%)520$-,($$%57%-"(#)%)($01-$/%-"(:%0$(4%-"(%-Q56$-(&%7('$#21(%(*'.-%15.'1% l "#--1(%?;9U l R<!B%($-#+'-5)%57%<"#+5-$0%?R>>aB/%Q"#."%'115Q$%75)%&51:,5+#'1%-)(,4$/%,5,6,5)+'1%4#$-)#20-#5,$/%',4%,5,6$-'-#5,')#-:P%-"(%)($01-$%#,4#.'-(%-"'-%'11%$-5.3%&)#.(%$()#($%Q#-"%-"(%(*.(&-#5,%57%M(*#.5%')(%,5-%+(',6)(8()-#,N0%%

J,%'%)(1'-(4%$-04:/%G#16D1','%?R>>aB%0$(4%&')'+(-)#.%',4%$(+#6&')'+(-)#.%+(-"54$%-5%-($-%75)%-"(%5)4()%57%%5)4()%57%

$-'-#5,')#-:%#$%750,4%5,1:%75)%-"(%&)#.(^4#8#4(,4%)'-#50% l "(,%-"(%.:.1#.'1%.5+&5,(,-%#$%'1$5%

!

-"(%&)($(,-%&'&()

P!

!

-($-% $-'-#$-#.% #+&1#($% ,5,6,5)+'1#-:% 57% -"(% $()#($% '-% -"(% 4'#1:% ',4% Q((31:% 7)(c0(,.:% ',4%

,5)+'1#-:%'-%-"(%+5,-"1:%5,(0%!

!

VEK! # : >8=8I<7!$9A57BA!

l (%$-')-%2:%($-#+'-#,N%75)%-"(%15NN(4%4'-'%-"(%+54(1%N#8(,%2:%(c0'-#5,%?RB%-"'-%'115Q$%75)%,5,6

1#,(')%-)(,4$0%!"(%)($01-$%75)%-"(%+5,-"1:/%Q((31:%',4%4'#1:%$()#($%)($&(.-#8(1:%')(%)(&5)-(4%#,%

!'21(%I0%%

W&?A9=B!'<O79!V!<O;5B!S9=9Y%

% !"()(%#$%,5%(8#4(,.(%57%,5,61#,(')#-#($/%$#,.(%'11%-"(%pR%',4%pF%.5(77#.#(,-$%')(%,5-%

$-'-#$-#.'11:%4#77()(,-%7)5+%f()50%D$%75)%-"(%7)'.-#5,'1%4#77()(,.#,N%&')'+(-()%4/%+5$-%57%#-$%

($-#+'-(4%8'10($%')(%$1#N"-1:%$+'11()%-"',%=/%',4%-"(%0,#-%)55-%,011%":&5-"($#$%.',,5-%2(%)(e(.-(4%

#,%-"(%+'e5)#-:%57%-"(%.'$($0%!"(%5,1:%(8#4(,.(%57%+(',%)(8()$#5,%?#0(0/%4%$+'11()%-"',%=B%#$%

750,4%75)%Q((31:%4'-'%#,%-"(%.'$(%57%HDHI>%',4%;!<9=>>%Q#-"%Q((31:%4'-'%?4%2(#,N%(c0'1%-5%

>0]R%#,%25-"%.'$($B%',4%MJKI>%Q#-"%4'#1:%4'-'%?4n>0]LB0%

W&?A9=B!'<O79!Z!<O;5B!S9=9Y!

G#8(,%-"(%(8#4(,.(%

!

T())5,g$%?R>>FB%-($-$%75)%+01-#&1(%2)('3$0%!"(%)($01-$%

/K!

!

)(8()$#5,%$#,.(%-"(%($-#+'-(4%8'10(%57%4%?>0L[B%#$%$#N,#7#.',-1:%2(15Q%=P%75)%JK9E%-"(%-")((%

($-#+'-($%57%4%')(%)'-"()%$#+#1')%',4%-"(%0,#-%)55-%,011%.',,5-%2(%)(e(.-(4P%7#,'11:/%75)%-"(%

;!<9=>>/%-"(%-#+(%-)(,4%#$%$#N,#7#.',-%#,%-"(%7#)$-%$02$'+&1(%',4%+(',%)(8()$#5,%5..0)$%#,%-"(%

$(.5,4%$02$'+&1(0%M5)(%&)(.#$(1:/%+(',%)(8()$#5,%#$%750,4%#,%-"(%.'$(%57%-"(%+5,-"1:%$()#($%

58()%-"(%02'+&1(%R>==+]%t%R>=F+=R%75)%-"(%MJKI>%',4%R>=F+=6R>=a+=R%75)%-"(%

;!<9=>>0%

W&?A9=B!'<O79A!\!,!N!<O;5B!S9=9Y!

l"(,%0$#,N%Q((31:%%

!

$9F9=9?I9A!

%

K'#/%b0%',4%T0%T())5,%?R>>FB/%H5+&0-'-#5,%',4%','1:$#$%57%+01-#&1(%$-)0.-0)'1%."',N(%+54(1$/%b50),'1%57%D&&1#(4%9.5,5+(-)#.$/%=S/%=6RR%

%

K#()(,$/%V0b0%?=]][B/%u!($-#,N%-"(%@,#-%\55-%Q#-"%C)#7-%V:&5-"($#$%'N'#,$-%d5,1#,(')%!)(,4%<-'-#5,')#-:%Q#-"%',%D&&1#.'-#5,%-5%-"(%@0<0%T)#.(%U(8(1%',4%J,-()($-%\'-(v/%'()*+,-"(."/0(+(!12*3045"S=/%R]6aI0%

%

K55-"/%G0P%A'(,/%;0\0%',4%A58(5$/%T090%?=]SRB/%T()$#$-(,-%C(&(,4(,.(%#,%G514%T)#.($0%b50),'1%57%;#,',.#'1%\($(')."/%L/%?=B/%SL6]F0%

%

H'+&2(11/%b0%_0%',4%<"#11()/%\0%b0%?=]S[B/%H5#,-(N)'-#5,%',4%-($-$%57%&)($(,-%8'10(%+54(1$/%b50),'1%57%T51#-#.'1%9.5,5+:/%]L/%=>aR6=>SS0%

%

V'$$1()/%@0%',4%K0%M(11()/%R>==/%C(-(.-#,N%+01-#&1(%2)('3$%#,%15,N%+(+5):0%!"(%.'$(%57%@<%#,71'-#5,/%C#$.0$$#5,%T'&()%<()#($%=0%9.5,5+#.%<-04#($%Ra/%C(0-$."(%K0,4($2',30%

%

V(1+$/% K0T0P% A'(,/% ;0\0% ',4% \5$(,+',/% \09 0% ?=]SIB/% uM(+5):%#,% .5++54#-:% 70-0)($%.5,-)'.-$v/%b50),'1%57%;0-0)($%M')3(-$%I/%I/%LL]tLa[0%

%

V#,#."/% M0% ',4% T'--()$5,/% C0% ?=]SLB/% 98#4(,.(% 57% d5,6U#,(')#-:%#,% C'#1:%<-5.3% \(-0),$0%b50),'1%57%K0$#,($$%h%9.5,5+#.%<-'-#$-#.$0%F0%a]6

!

<+:-"/%G0A0%?=]]SB/%*B(-:+(!3,-";CC*(D3!,23(+/%b5",%1#1(:%h%<5,$/%U-4/%H"#."($-()W%@,#-(4%A#,N45+0%

%

!5+'$(8#./%d0M0%',4%!0%<-',#803%?R>>]B/%u\(N)($$#5,%D,'1:$#$%',4%D&&)5*#+'-#5,%2:%M(',$%57%H"(2:$"(8%T51:,5+#'1v/%E+.(*!,2(-(>3,/%IR/%=aa6=[R0%

%

_0",/%A0V0%?=]]aB/%<-5.3%&)#.(%851'-#1#-:W%-($-$%75)%1#,(')%',4%,5,61#,(')%.5#,-(N)'-#5,%#,%-"(%&)($(,-%8'10(%+54(1%57%$-5.3%&)#.($/%D&&1#(4%;#,',.#'1%9.5,5+#.$/%aWa/%IS[6I]I/%CZJW%=>0=>S>^>]a>F=>]aFFF]FL0%

%

_0-"',''/%<0%',4%<0-"'Q',/%T0%?R>=RB/%<-)0.-0)'1%K)('3$%#,%<-5.3%\(-0),$%j51'-#1#-:W%98#4(,.(%7)5+%-"(%<-5.3%9*."',N(%57%!"'#1',40%9+&#)#.'1%9.5,5+(-)#.$%',4%{0',-#-'-#8(%9.5,5+#.$%U(--()$0%

%

%

%

%

%

/N!

!

%

' <O79!ME! / 9AI=8>B8@9!%B<B8AB8IA!X! / <87C!D<B<!

%	d%	M#,#+0+%	M'*#+0+%	M(',%	<-40%C(8#'-#5,%	D$:+&0%<#N0% ?R6-'#1(4B0% A51+5N5)586 <+#),58%!($-%
JK9EFL|ZT9d%	R>LF%	L]L>/I>%	==[]S/L>%	]IIa/I]%		

!

%

%

' <O79!KE! / 9AI=8>B8@9!%B<B8AB8IA!X!] 99^7C!D<B<!

/P!

!

%

' <O79!UE! / 9AI=8>B8@9!%B<B8AB8IA!X! 3 ; ?BS7C!D<B<!

%	d%	M#,#+0+%	M'*#+0+%	M(',%	<-40%C(8#'-#5,%	D$:+&0%<#N0% ?R6-'#1(4B0% A51+5N5)586 <+#),58%!($-%
JK9EFL|ZT9d%	=R=%	a=>]/[>%	==]Sa/L>%	]a>S/L[%	=R>[/aS%	>/=[a%

!

' <O79!VQ!#AB8 : <B9D!I ; 9FF8I89?BA!8?!<!? ; ?78?9<=!&_D`! : ; D97!F ; =!BS9!7 ; 6!>=8I9A!A9=89A!

#B%%%M5,-"1:%4'-'%					
<()#($%	4%	p>%	p=%	pR%%?dUB%	pF%%?dUB%
; \DdH9%	>0]>% ?>0[[/%%=0>[B%	**aEMNKZ!** **_V[EZL`!**	6>0=a>F% ?6=0LaB%	>0>>]a% ?>0=aB%	>0>=FF% ?>0FFB%
G9\MDd_%	>0]=% ?>0[[/%%=0=>B%	**aEa\UV!** **_VUEV[`!**	**,LEKNZL!** **_,KEV\`!**	6>0>IaF% ?6>0[>B%	6>0>=>L% ?6>0RFB%
J!DU_%	>0]>% ?>0[S/%%=0=>B%	**NE\Ma\!** **_VLEKU`!**	6>0>IR]% ?6>0F>B%	>0>I=F	

!

#B%%%M5,-"1:%4'-'%

<()#($%

!

' <O79![Q!(5:O9=!;F!O=9<^A!8?!9<IS!A9=89A!5A8?6!487,.7<?<!_KLLa`!

!

!

' <O79!\Q!#AB8 : <B9A!;F!D!F;=!9<IS!I;5?B=C!<?D!9<IS!A5OA< : >79!P8BS! 3 + (' b - c!D<B<!

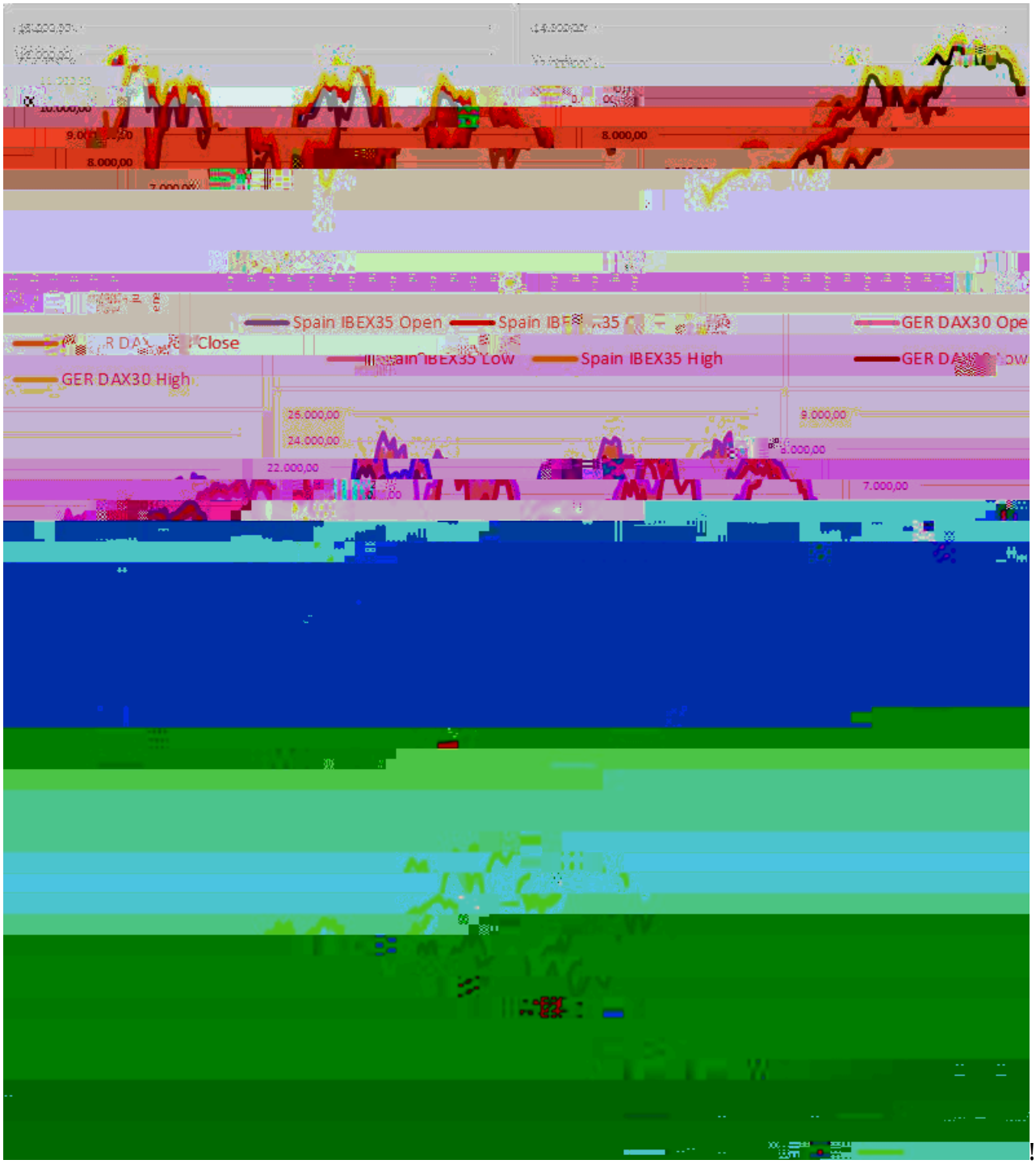
H50,-):%	<02$'+&1($%	d5%-()+$%	D,%#,-().(&-%	D%1#,(')%-)(,4%
% ; \DdH9%	=$-%$02$'+&1(%	>0]F%%?>0[[/%=0=[B%	LENU!!_LE\U*!MEKU`!	>0]I%%?>0[a/%=0RRB%
	R,4%02+&1(%	>0]R%%?>0[R/%=0R=B%	LE[\!!_LEVK*!MELU`!	>0[=%%?>0I]/%=0>IB%
	F)4%02'+&1(%	>0SR%%?>0IS/%=0RaB%	LE\U!!_LEVU*!MEML`!	>0[R%%?>0IL/%=0==B%
% G9\MDd_%	=$-%$02$'+&1(%	>0]F%%?>0[[/%=0=aB%	>0SF%%?>0a=/%=0=]B%	LEaZ!!_LE[*!MEMa`!
	R,4%02+&1(%	>0]=%%?>0[>/%=0R=B%	LE\Z!!_LEVV*!MEKZ`!	>0S>%%?>0LR/%=0RIB%
	F)4%02'+&1(%	>0SI%%?>0LL/%=0RIB%	LENZ!!_LE\K*!MEUM`!	>0]I%%?>0[>/%=0F=B%
% J!DU_%	=$-%$02$'+&1(%	>0Sa%%?>0aR/%=0R>B%	LE\[!!_LEZL*!MEUM`!	>0[a%%?>0I]/%=0FRB%

!

!
!
!
!

!

!
. >>9?D8I9A!
!
!
. >>9?D8d!ME! 3 ;?BS7C!AB;I^!8?D8I9A!
!



!
!
!
!
!

!

!

JO!

!

!

. >>9?D8d!UE! / <87C!AB; I^!8?D8I9A!

!

!

!