
Pablo Torres

Best Dissertation Prize Winner

MSc Regulation 2018-9

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\$(">'&)(&%"(5&"\$%L"*8"+&E?&>(\$+E"7*?\$>/'-h&>(\$:&%"(5)(">*+%(\$,(&"(5&".*(\$:&%8*"H5\$>
&+(\$/" H)%">'&)(&#" N!5)'*+\$" G3R0PF" V*" &M).7?&," 8*>,%\$+E")((&+(\$*+" *+" (5&" 8\$.X%'
7"*8\$)-)\$?\$/".)/">?)%5"H\$(5"%&??\$+E"E**#%")(")>&%%\$-?&"7'\$>&%8*"?"HK\$+>*.&">\$(d&
.)+E\$+E" %(')(&E\$>+)(,')?"'&%*','>&% "\$+") %,%()\$+)-?&" H)/;)+#") I@O" H5*%&")\$+
>*+>&'+"\$%"(5&"&>*+\$.>:".)\$-\$?\$/'"8"(5&"8\$'."/)-&"(&.7(&#"(*"?*L"*+?/)"(5&"8*'.&'"
H5\$?&"+&E?&>(\$+E"(5&"?)((&"Nq\$8"G3R4PF"!("(5&"%).&"(\$.&,"%*.&"#&>\$%\$*+%")L&+"-/"'
H\$(5)"5\$E5"#&E'&&"*8"),(*+*./".)/")?%*-&"\$+>*+%\$%(&+("H\$(5"E*:&'&+&+"7*?\$>/'E&+#);"
%\$+>&'.)+E&'%".)/"5):&"#\$88&'&+(">*+>&7(\$*+%)"-*,("5&"7"*7&""*?&"*8"(5&"=O@"N!5)'*+\$"
G3R0PF""

V*" (5&%&"&)%*+%;"%*.&"#&E'&&"*8"7*?\$(\$>)?">*+(*?*"&'"=O@%"\$%"+):*\$#)-?&"8*"

"

%(')&E\$>" +)(\$*+)?" \$+(&'&%("%")&" \$+.*?:&#;" (5&" \$+>&+(\$:&% " 8*" >+(*??\$+E" (5&" 8\$'.
)77*\$+(\$+E"?*)?\$(%("I@O%")'&"%('*+E"N9)'+&"G33Y\q\$8"G3R4PF""

=*.&"%(#\$&% "5):&"&.7\$'\$>)??/"%,77*('(&"(5&")77?>(\$*+"*8"(5\$%">+(*?"%(')&E/F"
V*"&M).7?&;"@++%&'Ka&#&+)%(\$L"N01GU)P"8\$+#+%"(5)("5&"#&:&'E&+>&"*8"7*?\$(\$>)"?7'&8
-&(H&#&+ ".)+E&'%")+#" E*:&'&+&+("\$%" (5&" .)\$+& "M7?)+)(\$*+"8*" .)+E&\$)"(' +*:&' "\$+ "
!,%('\$)+ " =O@%F" =7&>\$8\$>)??/;" 5&" %5*H%" (5)(" .)+E&'%")88\$?\$()&#" (") E*:&'&+(X%
77%\$(\$*+ "7)'(")'&" .*&" ?\$L&?/" (" -&" '&.*:&#" (5)+ " ?/)")+#" +*+K7)'(\$%)+!*+&%F"
%\$.?)"%(#/"*+" <\$ (5,)+\$)+ "7,-?>"%&>("**E)+\$d)(\$*+% "#&.*+%(')&%"(5)("=O@%")&'*+&"
8" (5&" 5\$E5&%"(7?\$(\$>\$d&#" &+(\$(\$&%;" H5\$>5" \$%" &M7?)\$+&#" -/" (5&\$" "\$+&7&+&#&+>&"
>&+(')"E*:&'&+&+("Nb)L'*c\$%"01G2PF""

b*+&(5&?&%%;")77*\$+(\$+E" I@O% " *+" (5&" -)%\$%" *8" (5&\$" ?*)?(/)" (5&" &M7&+%&
>*.7&(&+>&;" .)/" >'&(&" (5&" '\$%L" (5)(")77*\$+(&+("%" -&)*.8(')&E/" ,%&#" 8*"
]\$??&E\$(\$.)(&^7)(' +)E&") (5&"(5)+ "8*"&+%,'\$+E" &%7*+%\$:&+&%%) +#"7*?>"/>+(*?"NQ)>5
&(")?F"01GR;"7F43P;"#&#&#" =O@%")&">*. *+?/" ,+&%'(**#")%]+)(,)" (**?%" 8*"7*?\$(\$>)"
7)(' +)E&^" NV?*&%KC)>`)"% " 01G1;" 7F43P;" %\$+>&" (5&/" >'&(&" \$+>&+(\$:&% " 8*" 7*?\$(\$>)+
&.7?*/" 7*?\$(\$>)"% ,77*('&'%" \$+ " *#&" (" E)\$+ ".*(&%;" &:&+ " \$8" (5&" &M>&%%\$:&" &.7?*/.&+('
,+&#&' .+\$&% "&88\$>\$&+>/"N=5?&\$8&"")+#" g\$%5+/"G33UPF"S+"(5\$%"%&+%&%;" &.7\$'\$>)"%(#,
%5*H+"(5)("5&"8\$'.X%" +,-&'**8"&.7?*/&&%;")%"H&??)"% "\$(% "&.,+&')(\$*+)+#">)7\$()?\$d)(\$*+ "
?&:&?%;")&"7*%\$(\$:&?/"&?)(&#"H\$(5"7)'(/7)(' +)E&"\$+ "=O@%"N@++%&'Ka&#&+)%(\$L"01GU
(5&" %).&" (\$.&;" H5&+ " =O@%" #*" +(" 5):&" % ,88\$>\$&+(" (')+%7)'&+>/")+#")>>*,+(-)\$?\$(/"
.&>5)+\$%.%" N&FEF" '&?)(&#K7)'(/" (')+%)>(\$*+% "#\$%>?%&,'&" ',?&%P;" (5&/" .)/" -&" ,%&#")
:&5\$>?&% " 8*" 8):*'\$+E" 7*?\$(\$>)"? 7)'(+&'%;" 8*" &M).7?&;" -/")??*>)(\$+E" (5&" ?,>')(\$:&"
>+(')>("%") (5&" &M7&+%&" *8" (5&" 8\$'.X%" &88\$>\$&+>/" *"' &:&+ ">*" ,7(\$*+" NC\$?5),7(")+#"

4A)'(/7)(' +)E&"5)%&#&+"#&8\$+&#" \$+ ".)/"#88&'&+("H)/%"N&FEF"f*7&>Lm"&(")?F"01GY\A)+\$dd)"&(")?F"01GR
S+"(5\$%"%(#,7\$&%"()+&#(')"(5&" ,%&"*8"7*?\$(\$>)\$+)&+("%"HS(5"(5&"7,7*%&"*8"&H)#\$+E"7*?\$(\$>)"
%,77*(')(5&"(5)+ (">+(*?"7*?>NQ)>5&(")?F"01GRPF

"

A)'E&+#?&" 01GWPF" T5\$%" H)%" (5&">)%&," 8*" &M).7?&," \$+" (5&">*," 7(\$+" %>)+#)?" (5) (" (5
 *>," &#" \$+" (5&" Q') d\$? \$)+ "% () (&K*H+&#" "\$? ">* .7)+/" A& ("-')% !&# ("5&">)%& _ "H5& &
 %* .&" 7*? \$(\$>)?") 77*\$+(&&% ">)" \$&#" *," (" - \$#" \$EE\$+E"%>5& .&" 8* . "H5\$>5" (5&" (5&+" E*:&' +\$+E"
 7)' ("*-')\$+&#" %\$E+\$8\$>)+ ("> .7)\$E+" 8,+ #%" "NC\$?5), 7 (")+ # "A)'E&+#?&" 01GWPF""
 !##\$(\$+)??/;" ?*/)? \$%(%& &% 7&>\$)??/" % ,%> &7(\$-?&" (" # \$% . \$%%)??% "H5&+")>5)+E&
 \$+" (5&" E*:&' +\$+E">*)? \$(\$+" *>," % "N @++% &' Ka&#&+) % (\$L" 01GU) P" H5\$>5" .)/" 5):&" +&E) (\$
 \$.7)> (% "*" +7&' 8* .) +> &" NZ*?# " Q)+L " G332PF" O+ " (5&" *+&" 5)+#;" (5\$%" % \$ (,) (\$+" .) /" .) L&
 #&:&? *7\$+E") " 8\$.X% " ?* +EK (&' . :\$&H" # \$88\$>," ? (" N [g\$>G332") + # " o) " *H" G3RRPF"
 C* &* :& ;" % \$+> &5&" 7*? \$(\$>)? " >/>?&" \$%" % 5*(K (&' .))+ # " *8 (&+ " (5&" '&% ,? (% " *8" .) +) E&\$)? "
 #&>\$% \$*+%)" '\$%&" \$+" (5&" 8, ('&" N!+) % () % % *7* ,? *% " G3R2P; " I @O% .) /" 5):&" \$+> &+ (\$&% " (*
 % 5*(K (&' . #&>\$% \$*+%) (5) (" 8) : "*" (5&" (" #) /" H5\$?&" >* .7* . \$% \$+E" (5&" 8, ('&' :\$) - \$? \$ (/ " *8" (5&"
 8\$' . "NC, %) >>5\$*")+ # "<) dd) \$+\$ " 01GU " D) .) , (' \$ " G33GPF" O+ " (5&" * (5&" 5)+#;" \$8" I @O%)" '&
 # \$% . \$%% &# " -&> , %&" *8" >5)+E&% " \$+" E*:&' +. &+ (X% " 7' &8&' &+> &% " ') (5&" (5) + " 8*" 7**
 7&' 8* .) +> & ;" \$+> &+ (\$&% " (* -&" &88\$>\$&+ (H&) L& NT \$*? &" G33UPF""
 T5&%&" >* +> &' + % " 5):&" # \$: &+ " (5&" >* 7*) (&" E*:&' +) +> &" E, \$#&? \$+&% " #&:&? *7&# " -/"
 \$+ (&' +) (\$* +)? " *' E) + \$d) (\$* + % " %, >5") % " (5&" O' E) + \$d) (\$* + " 8*" @>* + . \$>" I *K *7&') (\$* +) + #"
 6&:&? *7. &+ (" NO @I6P") + # " (5&" Z*?# " Q)+L " NC\$?5), 7 (") + # " A)'E&+#?&" 01GWP" H5\$>5;"
). * +E" * (5&" .&)% , '&% ;" '&>* .. &+ # "%&? &&> (\$* + .&>5) + \$% . %) \$. &#") (" 7' &:&+ (\$+E" 7*? \$(\$>)? "
) 77*\$+ (. &+ (% ;" \$+ % (&# " "&>' , \$ (\$+E" *88\$>\$)??% "*" +? /" * + " (5&" -) % \$% " *8" 7*8&% % \$* +)? " B,) ? \$8\$>
 NO @I6" 01G2 " Z*?# " Q)+L " 01GUPF" T5& , + # &' ? / \$+E" \$#&)" \$%" (" *):* # " 7*? \$(\$>)? " \$+ (&' :&+ (\$* +
 -/" &M (&+ # \$+E" (" =O @% " (5&" \$+ % (\$ (, (\$* +)? ")) +E& . &+ (% " (5) (" E*:&' + " \$+ " 7' \$:) (&" >* .7) + \$&% "
 N [) +) " 01GR " \ " g) E? \$) % \$+ # \$ " 011R) PF" T5, % ;" \$ (" .) /" -&" &M 7&> (&# 5(5) (8' H5& + # % " *8"
 .&>5) + \$% . %)" '&" \$+ " 7?) >& ;") 77*\$+ (&&% " 5):&" 5\$E5" ?&:&? % " *8" >* .7 (&+> &") + # " + * 7) ' (\$%) +
 >* + &> (\$* + % F""

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(5&\$"7*?\$((\$>)"*"'(&>5+\$>)"-)>LE'*,+;,"H5\$>5"#&8\$+&% "5\$%"7&'%*+)"??"*+EK(&.'"\$+>&+(\$
)+#" >)'&&" >*+>&'+%" Nq\$8" G3RGP" S+" E&+&')?" (&'.%," q\$8" NG3RGP" .)\$#(\$)+%" (5)(" H5
-,%\$+&%%"*"\$&+(\$*+"\$%",%,)"?8*"I@O%"H\$(5"7'\$*"&M7&'\$&+>&"\$+"(5&"7'\$:)(&"%&>(*"'_ "
*8(&+"-'\$+E" (5&\$" 7'\$:)(&" *"\$&+(\$*+" (* (5&" =O@@"_;" 7*?\$((\$>)" *"\$&+(\$*+" \$%" (/7\$>)??
#&.&?7&#"-/" I@O%" H\$(5" 7,-?>" &M7&'\$&+>&;")+#" H5*")'&")77*\$+(&#" 8*" 7*?\$((\$>)" *"
7)(*+)E&"&)%*+%F"

6')H\$+E"*+"q\$8"NG3RGP;"D).,.'("\$NG3RWP"#\$((\$+E,\$%5&%"(5'&&"#\$88&'&+(">)(&E*
8"I@O%)>>#\$+E" (* (5&\$"*"\$&+(\$*+%F"T5&%&">)(&E*\$&%&M7?%\$&+E\$*H"
(5&"\$+>&+(\$:&%")+#"-&5):\$*"8"?*)?\$(%)"+#" &M7&'(%)'&"&8?&>(&#"H\$(5\$+"(5&">*+(&M
=O@%F"T5&"8\$%(">)(&E)10(58)!"12/!"3\$0!4'0'5*&3;">*"%7*+%" (*"I@O%"H5"
(/7\$>)??">*.&"8*."7'\$:)(&"8\$'.%"*"'=O@%"%&>(*"ND).,.'("\$G3RWP" T5&\$"-&5).\$*" "
(5,%*"8(&+"\$+%7\$&#"-/"7'\$:)(&"%&>(*" .)+E&\$)"?7')>(\$>&%")+#".*(\$:)(&#"-/"(5&"%).&
>*+>&'+%")+#"7,'7%&%*"8"7'\$:)(&"%&>(*" I@O%"N@%>*-" "G3R0PF" Q&>,%&"8" (5);"(5
#\$&>(" (5&\$" (&>5+\$>)" &M7&'(\$%&"+#" .)+E&\$)"?>*.7&(&+>&" (* "\$.7*:\$+E" (5&" 8\$'.X%"
>*..&>\$)?7&'8*'.)+>&,"-&\$+E"7'*8\$(")M\$. \$d)(\$*+"(5&".)\$+"8*,>,% "N@%>*-)10(58) "
&(")?F" G3RWP"=\$+>&"(5&/")(" (5&"%).&" (\$.&;" .)/"-&"?&%%" &M7*%&#" (*"7*?\$((\$>)"7'&%
>*..&>\$)?KE*)?%" .)M\$. \$d&'%" 5):&")" %(*+E"-,%\$+&%%" *"\$&+(\$*+"H)7#?\$((\$>)" "
"\$&+(\$+"H5\$>5".&)+%"(5)(" (5&/")&+"*'.)??/" *'&">*..\$((&#" (5&">*..&>\$)?") (5&" "
(5)+"(5&" +*+K>*..&>\$)"*"-h&>(\$:&%O@%N)8%"\$ &(")?F" G3RWP"(\$ G3RW" q\$8"
G3RGP" S+"(5\$%"%&+&%&,"8*"&M).7?&,"(5&/" .)/"7'&8&" (*):*\$#"%&??\$+E"E**#%")+#"%&':\$>
?*HK.)'E\$+"7'\$>&% "\$8"(5\$%"%&+&%)&E("\$.&+)" (*"7'*8\$(")M\$. \$d)(\$*+"&.\$+5\$8"7) (" "
8" (5&" %>\$)" E)?%" (5)(" \$+%7\$&#" (5&" >'&)"(\$*+" \$8"

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\$+(&'&%("%)+#" 7&'8*'.)+\$%&?8("')(5&' H\$(5" (5&" E*:&'+.&+(X%" *"' *(5&' &M(&'+)?"

7*?\$(\$>)"\$+(&'&%("%N@%>]9%\$R0\"

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)"=O@"\$%"%&&+"7'&#*. \$+)(?/"%) "7*?\$>/K*\$&+(&#" &+(\$/;"\$(".)/" -&" &M7&>(&#" (5)(" (5& E*:&' +.&+("H\$???"%&?&>("I@O)"7\$(\$(\$>?")+#"7,-?>"%&>(*"-)>LE'*,+#F"S+#&&#;"q\$8" NG3RGP" 8\$+##%" &:\$#&+>&" (5)(" (5&" '&?)(*\$+" -&(H&&+" 7*?\$(\$>)" *'\$&+)(*\$+")+#" .)+E&' ->LE'*,+#"\$+"(5&"7,-?>"%&>(*"")(5&"(5)+"(5&"7\$:)(&"%&>(*"\$%"%()(\$%(\$>)??/"%\$E+\$8\$> I*+:&'%&?/;"\$8")"=O@"\$%"%&&+"%)") ">*..&'>\$?)")+#"7'*8\$(K*\$&+(&#" &+(\$/;"")77*\$+(\$+E" I@O"8'*(5&"7\$:)(&"(5&"=O@"%&>(*"%"&&.%(""-&)"&)%*+)-?&">5*\$>&F"S+*(5&"H*#%;," *+&" .)/" &M7&>(" (5)(" I@O%" H\$(5" 5\$E5" .)+E&\$?)" >*.7&(&+&%&" H\$???" 7'&8&)-?/" -&")77*\$+(&#" \$+"=O@%" .*(?/"*'\$&+(&#"(*H)'#%"7'*8\$(%)"+#">*..&'>\$?)"*-h&>(\$:&% "_)+#"H\$(5")" .*&" .)+E&\$?)",(*+*./" _" H5\$?&" .*&"?*)?%\$(I@O%" H\$???" -&")77*\$+(&#" \$+" H5&'&"7*?\$(\$>)"*'\$&+(\$%+&%7&>?)?/"&?&:)+#"(5&"\$+(&'&%(%"8*"")>+(*?"5\$E5'"Nq\$ G3R4PF"

S+("(5\$%"%&(\$%&,"&&+"%)\$#"(5)("H5&+"E*:&' +.&+("%&&L%"(*"8\$+##")+"&B,\$?-\$,\$,." -&(H&&+" (5&" >*..&'>\$?)")+#" +*+K>*..&'>\$?)" #\$.&+;%\$*+% "8" =O@%," %&?&>(\$+E" 5/-'\$# ->LE'*,+#" _"I@O%"H\$(5"5\$E5"?&:&?%"*8"-*(5"?*)?(/")+#">*.7&(&+&F" T5&" +&M(" %&>&+)'\$*"%"\$+>&"-(5"7*?\$(\$>?")+#" (&>5+*>')("-\$)%&%".)/" -&" +&,(?)\$d&#"NC,%>>5\$*")+#" <)dd)'\$+\$" 01G\).),('\$" G3RWPF"=\$+>&" (5\$%"\$#&?)"%&>&+)'\$*"%" +*(")?H)/%"7*%%\$-?&"\$ 7')>(\$>," E*:&' +.&+(" 5)% ("* .)L&" #&>\$%\$*+% " :&" ?*)?(/")+#" >*.7&(&+&F" T5&" +&M(" %&>(\$*+"#&%>'-\$&%"5*H"(5&%&"#&>\$%\$*+% "-&(H&&+"(5*%&">5'))>(&'\$%(\$>%"5):&" -&&+" I5\$?&)+="O@%F"

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J\$%\$!)5!N1%#5*!
T5\$%" %(&#" \$%" -)%&#" *+")+" *'\$E\$+?)")+#" ,+\$B,&" #)()" %&(" >*.7'\$%\$+E" -\$*E')75\$>?)" \$+8*'.)(*\$+"*8"(5&"\$+##:\$#,)?)%")77*\$+(&#"%)I@O"\$+(5&"I5\$?&)+%()(&K*H+&#"&+(&'7'\$%&)

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*88\$>\$)?" '> *7%?5%5&#" -/" (5&" 15\$?&)+ " -,#E&(" *88\$>&" N6SAD@=PF" O+?/" &+(&'7'\$%&%
H5*??"*H+&#" -/"(5&"%)(&")+#">,"&+(?/"\$+*7&')(\$*+"H&'&"\$+>?,"&#"\$(+)(5&"#)()"%&("N00PF
T5,%; "=O@%"H\$(5". \$M&#"*H+&'%5\$7"N4P")+#"(5*%&"(5)("5):&">?*%&#"*)'&">,"&+(?/" ,+#&"
?B,\$#)(\$*+"NYP"H&'&"&M>?,"&#"F"C\$?\$()/'" =O@%"N4P"H&'&")?%"* &M>?,"&#" -&>),%&"(5&
:&'/%7&>\$8\$>"\$+%(\$,(\$*+)?"%(',>('&%"(5)(".)L&"(5&+>*.7?&(&?/"#\$88&'&+("8'."(5&"):&')E&"
=O@%B,\$+E"(5\$%"%)&7,7\$+E"*8"(5&"I@O%)77*\$+(&#"#,\$+E"(5&"*-%&':&#"7&'\$*#;"(5&"
8\$'."\$+"H5\$>5"(5&/"%&':&#"")+#"(5&\$'"(&+,'&"#)(&%;"H)%")?%"* >*+,#,>(&#F"S+"*#&"("E)(5&"
(5\$%"\$+8*.)(\$*+;"S"7'\$.)'\$?/" ,%&#"8\$'.X%")++,)"&7*'(%;"*88\$>\$)">*.&'>\$)"&E\$%(&'%L&7(
-/" (5&" 15\$?&)+ " %&>,\$(\$&%"'&E,?)(*" NICVP")+#" 8'&#&#." *8" \$+8*.)(\$*+" '&B,\$&.&+(%F"
Z5&+" (5&'&" H&'&" +*("7*%\$\$-?&;" S">*.7?&.&+(&#" (5&"\$+8*.)(\$*+" -/" ,%\$+E"\$+%(\$,(\$*+)?"
H&-%\$(&%;" .&#)\$"#)()-)%&%;"")+#"*(5&"7,-?&>"&7*'(%F" S+" (*)?;" (5&"#)()"%&(" >*+()\$+% "G
\$+#\$:\$#,)?"%,"H5\$>5"'&7'&%&+(%"7')>(\$>)??/" (5&" >*.7?&(&"7*7,?)(\$*+" *8" I@O%" #,\$+E" (5&
-%&':&#"7&'\$#F"

6,\$+E"(5&"%&>*+#"%(&7;" S">*+,#,>(&#" "-\$*E')75\$>)"%,(#/" *8" &)">5" \$+#\$:\$#,)?"\$+"
#&" (" \$#&+(\$8/" (5&\$'" -)>LE',+#" \$+" (&'." *8" ?*)?(/")+#" >*.7&(&+&F" S" >*??&>(&#"
\$+8*.)(\$*+"&E)'#\$+E"(5&\$'"7'*8&%%\$*+)"&M7&'\$&+>&";>)'&&"(')h&>(*!;"7*?\$(\$>)"7*%\$(\$+
O'H2 0 0 12 ()).'&E)'#\$&'#S'"H--\$%;"\$+"

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+*(""+?/"7)'(\$%)+"?*)?(/;"-,(")?%*"8&)?(/")+#"7&'%*+)?"(',%(">5)')>(&'\$%(\$>%F"T5)("\$%;"?*)?(/"
\$%&)%,'&#" 5&'&)% " %5)'&#" 7*?\$((\$>)?")88\$?\$)(\$*+")+#" \$&*?*E\$>)")?\$E+.&+(" H\$(5" (5&
)77*\$+(\$+E"E*:&'+.&+();%"H&??"7%2\$(\$>)?"7&'%*+)?"(',%(F"S">\$7(/;&#%\$+E"(5'&&"
\$+#\$>)(*%" '&7'&%&+(\$+E")" %5)'&#" 7)'(\$%)+")88\$?\$)(\$*+;" 7*?\$((\$>)?" H*L" H\$(5\$+" (5&" %
7*?\$((\$>)?"7)'(/;)+#"7*?\$((\$>)?"7&'%*+)?"(',%(F"V""%5)'&#"7)'(\$%)+")88\$?\$)(\$*+;"S">*#&#"G"\$8
\$+#\$:\$#,)?"H)%)".&.-&""8"(5&"%).&"7*?\$((\$>)?"7)'(/)"%(5&")77*\$+(\$+E"E*:&'+.&+();)+#"1"
*(5&'H\$%&F

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%&'.&#")%"5&#"*8")+")E&+>/"\$.+\$%(&'\$)?"7'*E+):(5&")#.\$+\$%(')(\$:&"7'*h&>(;")+#"

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7&'\$*#%" >*.7'\$%&#" H\$(5\$+" (5&" *-%&':&#" 7&'\$*#F" T5\$%" 7&'\$*#" >*:&'%" (5&" >&+(&'K?&
)#.\$+\$%(')(\$*+% "8" A)('\$>\$* " !/?H\$+" NG331KG33UP;" @#,) #' " V'&\$" NG33UK0111P;" D\$>)'#
<)E*%"N0111K0111YP;")+#"C\$>5&??&"Q)>5&?&("N0111YK01G1\01GUK01GRP;")%"H&??")%"
)#.\$+\$%(')(\$*+% "8"= &-)%(\$k+"A\$j&') "N01G1K01GU\01GRPF""

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,0/+6+9\$;!E+)5+)M*!
Q&8*'&")+) ?/d\$+E" (5&" :)'\$)(\$*+"*8" (5&" ?*)?(/")+#" >*.7&(&+>&" \$+&#M&%;")%" H&??")%" (5&
7'&8&'&+>&%")-*,(" 7)'(\$>,?)" "\$+&#>)(*"%")>*"%" #88&'&+("\$+%(,\$(\$*+)")"+E&.&+("%;")"
E&+&')?*"&':&\$H"*8"(5&"(*)?)77*\$+(.&+(%"#,\$+E"(5&"*-%&':&#"7&'\$*#"H\$??"-&"%&("*,("N%&
T)-?&"GPF"<**L\$+E")(" ?/)?(/" \$+&#>)(*"%;"\$("\$%"7*%%\$-?&" (**%&&"(5)("43i"*8" (5&")77*\$+(8
%5)')'(/"88\$?)(\$*+"H\$(5"(5&")77*\$+(\$+E"E*:&'+.&+ (;)+#" (5)("Yi"5)#")?%"*)"7*?\$(\$>)"
>)'&&')%")&.-&""8"(5&"7)'?\$).&+("""8"*.">*.7&(\$+E"\$+ "E&+&')?"&?&>(\$*+%F"O+"(5&"*(5&"
5)+#;"G3i"*8"l@O%"5)#"-&&+ ". \$+\$%(&'%;"%,-K.\$+\$%(&'%" ""5&?#""(5&"7*?\$(\$>)"7*%\$(\$*+%
7'&%\$#&+(X%" 7&'%*+)" (',%(;" H5\$?&" 04i" 5)#"-&&+" 5&)"# "8")+")E&+>/" "")" . \$+\$%(&'\$)"
7*'E').F" !%" 8"" >*.7&(&+>&" \$+&#>)(*"%;" 23i")77*\$+(&&% "5)#" 5)#" 7'\$"" .)+E&'\$)"
&M7&'\$&+\$\$):(&" 8\$'.%;" H5&'&)"% "2Ui" 5)#" H*"\$&=O@%&>(*"F" D&E)'#\$+E"
&#,>)(\$*+"?&:&?;"5)?8"*8"(5&")77*\$+(&&% "5)#" .)%(&'X%"#&E'&&%;"H5&'&)"%Wi")?%"*5)#"A5
%(&#&%F""

S("\$%"\$+(&'&%(\$+E" (* +*(&"(5)(" .*(%"*8" (5&")77*\$+(&&% "5)#" 5/-' \$#"-)>LE'*,+ #%"F" S+
. *'&">*+>'&(&'&'.%;"UW;0i"*8"(5&")77*\$+(&#l@O%">*. - \$+&#"&M7&'\$&+>&"\$+"7\$):(&"8\$'.%"
" (5&"=O@%"%&>("H\$(5"7)'(\$%+)"88\$?)(\$*+")+#"%"&."&"&M7&'\$&+>&"\$+"E*:&'+.&+ ("*"7*?\$(\$>)"
(5&'&8*'&"%5"H\$+E">5)')>(&'\$%(\$>% "(5)(")&'&'&7'&%&+)(\$:& -* (5"*8"?*)?(/")+#" >*.7&(&+>&F"
T5&" %&>*+#" .*(%" >*. *+" E'*,7" \$%" (5)(" *8" l@O%" H\$(5" &M>?,%\$:&?/" 7'*8&%%\$*+)"
)>LE'*,+ #%" NU4;UiP;" H5&'&)"% *+?/" 3;Ui" *8" (5&")77*\$+(&&% "5):& "->LE'*,+ #%" *+?/"

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'&?)(&#"H\$(5"?*/)?(/;"5):\$+E"+*7*8&%%\$*+)?"&M7&'\$&+>&"&+\$5&'"\$+"7=\$)@#8\$.%"+"*"
T5\$%&:\$#&+>&"%,EE&%(%(5)("5&'&"\$%)E&+&')?7'&8&'&+>&"8*'"H&?8)'&K.)M\$. \$d&'%"I@
H5\$>5" \$+#\$>)(&%" (5);" H5&+" .)L\$+E")77*\$+(.&+(" #&>\$%\$*+%;;")" -)?+>&" -&(H&&+" -(5"
-,%\$+&%%)+"#7*?\$(\$>)"#\$.&+%\$*+%"*8"=O@%"\$%"7,'%,&#F""

T,'+\$+E"(*"(5&":)\$(\$*+% "\$+ "?*/)?(/"+# ">*.7&(&+>&"\$+ #&M&%")+#"(5&\$'"&%7&>(\$:&"
7)'(\$>,) "\$+#\$>)(*%"=O@%&>(*%*.&"\$+(&'&%(\$+E"7)((&'+"&.&'E&F"V'\$%(;)">>*#\$+E"(*"
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)'&")?%"\$*.7*')+("\$+%(\$,(\$*+)?":)\$)(\$*+%F"V*" &M).7?&;"H5\$?&"%*.&"%&':\$>&"=O@%")'&
%(',>('&#")%">*.7)+\$&%;"*(5&'%"')&"%)(,('/">*7*')(\$*+%F"V*" (5\$%" '&)%*+;"\$+"H5)("
8*??*H%;"S")+)?/d&"5*H"?*)?(/"+#">*.7&(&+>&"\$+#&M&%;"%)%H&??")%)(5&"7'&8&'&+>&%"
7)'(\$>?)'"\$+#\$>)(*%";:)'/">>*#\$+E"(*"#88&'&+("\$+%(\$,(\$*+)?"8)>(*"%%,**,\$+#\$+E"=O@%F"

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I@O"Q">LE'*,+#%	C\$+\$+E bt41 "	V\$+)+>& bt2 "	T')+%7*(" Q*)#>)%(\$+E btGW "	Q*)#>)%(\$+E bt3 "	=&':\$>&% btU "	Z)(&' " bt03 "	A*'(% bt03 "
+/#!"#\$8*4\$	1;42"	1;02"	1;GG"	1;4"	1;0"	1;02"	1;G0"
A)'(/"88\$?\$)(\$*+)	1;Y4"	1;Y"	1;GW"	1;WW"	1;43"	1"	1;GW"
A*?\$(\$>)">)'&&'	1;G4"	1"	1"	1"	1;G4"	1"	1;14"
A*?\$(\$>)"	1;44"	1;0"	1"	1;44"	1;1R"	1;02"	1;01"
7&'%*+)?"(',%(	1;44"	1;0"	1;03"	1;GG"	1;0G"	1;W2"	1;G1"
!E&+>/"	1;44"	1;0"	1;03"	1;GG"	1;0G"	1;W2"	1;G1"
&M7&'\$&+>&"	1;44"	1;0"	1;03"	1;GG"	1;0G"	1;W2"	1;G1"
"	"	"	"	"	"	"	"
;/0%*.*)* \$(8*4\$	G"	1;W3"	1;RW"	1;3Y"	1;R"	1;3G"	1;R4"
@#,>)(\$*+)?"	G;W"	G;0"	G;2R"	G;WW"	G;43"	G;2"	G;UR"
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A'\$*(608 0 0 10.3							

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H\$(5"#88&'&+("?&E)?%(),(%"_"%7&>\$8\$>)??/;"H5&(5&"(5&"/)8/0%("3\$%5&#"%)

3!.9./&#\$)/&%/&!./(3F"=O@%"')&,"%,)??/"E\$:&+"(5&"8*."*8">*.7)+\$&%"\$+"*#&#"(*"E\$:&

(5&."(5&"%).&"8?&M\$-\$?\$/("5)("7\$:)(&"8\$.\$4"5)*&#,>(\$+E"(5&\$")>(\$:\$4&??")%

\$%*?)(+\$E"(5&."8*."E*:&'&+.&+("\$+(&:&+(\$+"NC)>I)'(5)\$E5"01GG\g)E?\$)%\$+#\$011R)PF"

S+#&&#;"l5\$?&)+"%()(&K*V0%#3")&'+"(%,-h&>("*(5&">?)%%\$>"7,-?\$>?)H">+(*?%"

+*"')&"(5&/"7)'("8"(5&"7,-?\$>"%&>(*"F" T5&\$")>(\$:\$(\$&%"N)%"H&??")%(5&\$"7&'%*++&?"

>+(')>(\$+E""&E\$.&%P")&'&E,?)(&#"-/E&+&')?>*.7)+"/)+#"%&>,\$(\$&%"?)H;")+#"-/(5&\$"

H+ "-/?)H%F"!##\$(\$+)??/;"(5&/"')&"*7&+("7*(&+(\$)?7\$:)(&"%5)'&5*?#\$+E%F"l*+.&%&?/;"

3!.9./&#\$)/&%/&!./(3")&'7,-?\$>?)H"&+(\$(\$&%">+(*?&#&#&'&>(?/"-(5&"7&'%\$&#&+(""-/"

'&%7*+%\$-?&".\$+\$%(&"F" T5&/"')&'7)'("8"(5&"7,-?\$>"%&>(*"")+#"&E,?)(&#"-/?&E)?%(),(&%

9\$:&+"(5&"#\$&'&>("E*:&'&+.&+())?>+(*?"*:&'%()(!,(*"/>*7*')(\$*+%;)"77*\$+(\$+E"l@O%"*+"

(5&"-)%\$%"*+"?*)?(/)("5&"&M7&+%&"*8">*.7&(&+&")/"-&"&)%\$&"(5)+"\$+>*.7)+\$&%;"H5&'&

>*7*')(&" ,?&%".)/"\$7*%&'()+%7)'&+>"/>+*%(')\$+(%"+E*:&'&+.&+("NO@I6"01G4PF" T5,%;"

H&".)/" &M7&>("5)("l@O%"8'±O@%E)+\$d&#")%"%(),(*"/>*7*')(\$*+%5):&"5\$E5&"

?&:&?%"*8"?*)?(/)+#"?*H&""&:&?%"*8">*.7&(&+&")5)+("5*%&"%&?&>(&#"\$+>*.7)+\$&%F""

T)-?&"4"\$??,%(')(&%"\$+8*').(\$*+"*+"(5&"7'*7*')(\$*+"*8")77*\$+(&#"l@O%"8*."&)>5"

16/0%!+-85964 +('&8(/#)-&-85964 +(%)-816/0%./-85964 +-

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>*7*)(\$*+"I@O%"H&'&"%\$E+\$8\$>)+(?!".*&"?L&?/"(*"-&".&.-&'%"*8"(5&"E*:&'+.&+(X%"
 7*?\$((\$>)?"7)'/"(5)+")77*\$+(&&%"*8">*.7)+\$&%F"V*("/(5'&&"7&'>&+("8"(5&")77*\$+(&&%"\$+
 %())(,*!/">*7*)(\$*+"H&'&"7)'/"88\$?\$(%)&";H5&'&%"*+?/"B,)'(&"*8"(5&"I@O%"8*."
 >*.7)+\$&%".&("5)("B,)?\$/F"T5&/"H&'&")?%*".*&"?L&?/"(*"5):&"-&&+"%&':\$+E"\$+"7*?\$((\$>)?"
 7*%\$((\$*+"8"7'&%\$#&+(X%"(',%(;"-,(" ?&%%" ?L&?/"(*"5):&"7'\$*"")E&+>/"&M7&'\$&+>&"
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I@O"Q)>LE*'+#%	I*.7)+/ "	=()(,*!/"I*7*)(\$*+' =E+\$8\$>)+("6\$88&'&
+/#! ".#\$(8*4\$	1;G3"	1;04"	"
A)'/"88\$?\$((\$*+	1;02"	1;U4"	! "
A*?\$((\$>)?">)'&&"	1;1R"	1;1Y"	"
A*?\$((\$>)?"7&'%"*+)?"	1;G0"	1;0G"	"
(',%!	1;G0"	1;0G"	"
!E&+>/"&M7&'\$&+>&	1;44"	1;0G"	"
"	"	"	"
;/0%*.*)*\$:(8*4 \$	1;RW"	1;R3"	"
@#,>)((\$*+)?"?'&:&?"	G;2"	G;22"	"
A':)(&"%&>(*"	1;YY"	1;2Y"	"
&M7&'\$&+>&"	1;U2"	1;2Y"	"
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b*(&J<"!GGWF\$+#\$>)(&%%"\$E+\$8\$>)+("#\$88&'&+>&")("5&"1F12"?&:&?F

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 %())(,*!/">*7*)(\$*+"%5*H)"%?\$E5(?!5\$E5&"*+&F"T5\$%".)/"-&"&M7?)\$+&#"-/'(5&"7)'(\$>,?)"
 >*.7?&M\$("/\$+*?:&#"\$+(5&\$")>(\$:(\$&%;&%7&>\$)??/"\$+(5&">)%&"*8".\$+\$+EF"<L\$+E")
 7)'(\$>,?)'"\$+#\$>)(,*!/">*7*)(\$*+"H&'&"*&"?L&?/"(*"5):&"&M7&'\$&+>&F"Z5\$?&"I@O%"8*."
 &M7&'\$&+>&";(5&/"H&'&"?&%%"?L&?/"(*"5):&"H*L&#" \$+"7'\$:)(&"8\$'.%F"!?(5*,E5"(5&%
 #\$88&'&+>&%")&' +(" %())(\$%(\$>)??" %\$E+\$8\$>)+(;)" '&)%*+"(5)(".)/"&M7?)\$+(5&."\$%"
 >*.7)+\$&%;"H\$(5"(5&"7,7*%&"*8"&.,?)((\$+E"7'\$:)(&"%&>(*"%'>('&%;".)/"-&"%7&>\$)??/"
 \$+(&'&%(&#" \$+"5'\$+\$E"\$+#\$:\$#,)?)%"H\$(5"&M7&'\$&+>&"\$+"7'\$:)(&"8\$'.%F""

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T)-?&" U" 7'&%&+("% (5&" 7'7*('\$+" *8" I@O" -)>LE'*,+#%" '&8?&>(\$+E" ?*/)?(/")+#"
 >*.7&(&+>&"%&7')(&#"-/"H5&(5&")77*\$+(&&% "%&:'&"\$+"=O@%",+#&'"(5&"%,7&:'\$%\$*+"*8"=@
 "'(F"!%"&M7&>(&#;"(5&):&')E&"?*)?(/"\$+#&M"*8")77*\$+(&&% "H)% "%\$E+\$8\$>)+(?"5\$E5&
 #&>&+()?d&#@"%>*.7)'&#" ("(5*%&">&+()?d&#@"T5&/")?%*"5)#"5\$E5&'"?&:&?%"
 \$+"&:&/'"\$+#\$:\$#,)?"\$+#\$>)(*F"6\$88&'&+>&% "\$+"7')(/"88\$?&)\$(\$+"H&'&%"\$E+\$8\$>)+(F"=\$M(
 7&'>&+(*8")77*\$+(&&% "\$+"#&>&+()?d&#@"=O@%"H&'&E*:&'+.&+("7')(\$%)+%;"H5\$?&"*+?/"O
 .&("5)("B,)?\$(/"\$+"=O@%"%,7&:'\$%&#"-/"=@AF"<\$L&H\$%&;"I@O%"8*."#&>&+()?d&#@"=O@
 H&'&%"\$E+\$8\$>)+(?".'&"?\$L&?/"(*5);&75&(\$>)"7*%\$(\$+"*8"7'&%\$#&+(\$)"(',(5)+"
 (5*%&"8*.">&+()?d&#@"=O@%F"T5&/H&'&")?%*".'&"?\$L&?/"(*5):&)"7*?\$(\$>)">)'&&"+#"
)E&+>/" &M7&'&\$&+>&:"-,("5&%&"#\$88&'&+>&%")'&"+(*%())(\$%(\$>)??"%\$E+\$8\$>)+(F"='7\$
 I@O%"8*."#&>&+()?d&#@"=O@%"H&'&")?%*" %\$E+\$8\$>)+(?".'&">*.7&(&+("5)+"(5*%&
)77*\$+(&#" \$+"=@@%5):\$+E")?%*"5\$E5&'"?&:&?%" \$+" &:&/'"\$+#\$:\$#,)?"\$+#\$>(*F" T5\$%"
 8\$+#\$+E".)/"-&"&M7?)\$+&#"-/"(5&">*.7')(\$:&"%(')(&E\$>"&?&:)+>&("5)("#&>&+()?d&#@"=O@%
 5):&"8*"+)(\$*+)"\$+(&'&%(%F""

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I@O"Q)>LE'*,+#%	I&+()?d&#"N=@AF	6&>&+()?d&#	=\$E+\$8\$>6\$88&'&+>8
+/#!".\$\$: (8*4\$	1;G2"	1;44"	!"
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)&"\$+"?+\$&"H\$(5"(5&"#/+).\$>%*"8"7'&%\$#&+(\$?)77*\$+(&+("%\$+"I5\$?&F"C*~&">*+>'&(&?/;"8(
 (5&"&(+,"(*"#&.*>')>/"\$+"G331;"I5\$?&)+7'&%\$#&+("%5):&"5)#")>*+%()+("7'&8&'&+>&"8*"
 5\$E5K?&:&?")E&+("% >5)')>(&\$d&#" -/" %('*+E" (&>5+\$>)?" >*.7&(&+>&%" \$+")##\$(\$*+" (*" (5&
 7*?\$(\$>)?"%L\$?E+N("01GG\"=\$?:)"01G4PF"T5\$%"%(')(&E/"5)%")??*H&#" (5&." (*" &+5)+>&"
 (5&"#\$)?*E,&"-&(H&&+(5&"%()(&;"(5&"7\$:)(&"%&>(*")+#"?)-*"\$+(&&%(%;"%)%H&??")%("*)7
 ?*+EK(&."7*?\$>\$&%"\$%*?)(&#"8'*.7'&%%,&%8'*.-(5"(5&\$"%0,77*('\$+E"7*?\$(\$>)?"7)(\$&%")+
 77%\$(\$*+"N=\$?:)"01G4PF"

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H5\$?&"\$+"%*.&*(5&'%;E*:&'+.&+())?7*H&"\$%"%5)'&#"H\$(5"7'\$:)(&"%&>(*"'&7'&%&+)((\$:&%

"\$+#&7&+#&+("#\$!&>('"(5);#&%7\$(&-"&\$+E")77*\$+(&#"-"(5&"E*:&'+.&+(",)'&"%&?&>(&#"-"

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&M7&>(&#"("5\$E5&""),(*+*./"*8"=O@%"H\$(5".*'&"-)?)+&#"-'#">*.7*%\$(5\$%9%)

)%"+"\$+%(\$(\$+)?")"\$&""(*7*?\$(\$>)?"\$+(&'8'&+>&;">*+%(')\$+\$+E"(5&"E*:&'+.&+(X%)")-\$?9

(*")77*\$+("(5&\$"7)'(\$%)+%"N@++%&'Ka&#&+)%(\$L"01GYPF"[*H&:&";"(5\$%"5\$E5&""),(*+*./".)/

)("(5&"%).&"(\$.&">'&)(&"\$+>&+(\$:&% "8*"E*:&'+.&+("(*"\$+8?,&+>&"(5&"I@O%X")77*\$+(&+("%

)%">*.7&+%)(\$+"8*"("5&"?*"%"8">*+(*?"(5)("".*'&"-)?)+&#"-'#">*.7*%\$(5\$+"%,77*%&% "

NQ)>5"&(")?F"01GRP;"%*"H&".)/")?%"*" &M7&>(" (5)("E*:&'+.&+(",%&"7)'(\$%)+")88\$?\$(5\$+"

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(5)(" >5)')>(&'\$%(\$>F" T5&/" H&'&")?%*" %\$E+\$8\$>)+(?" . *'&" ?\$L&?/" (*" 5):&" 5&?#")" 7*?\$(\$>

7*%\$(\$+"*8"7&'%*+)?"(',%(F"!E&+>/"&M7&'\$&+>&")+#"7*?\$(\$>)">)'&&"H)%")?%*"5\$E5&"\$+=

H\$(5"-?)>&#"-*)'#%:"-,(("5&"#\$88&'&+>&%")'&"+*("%()(\$%(\$>)??/"%\$E+\$8\$>)+(F"

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)+# "%&':\$>&%" 7*:\$#&# N[*+" G332PF" !(" (5&" %).&" (\$.&," .)+E&'%" 8)>&" 7'&%%,'&%" 8*"
>+(*??+\$E">%("%)+#"*7&'(\$+E"&88\$>\$&+(?/"Ng\$>L&'%")+#"o)"*H"G33GPF"T5,%;"\$(".)"-
&M7&>(&#" (5)(" %%" (5)(" =O@%" 8)>\$+E" >*.7&\$(\$:&" 7'&%%,'&%" (&#" (" E\$:&" .*&" '&?)(
\$.7'()+>&"(*">*.7&(&+>&"(5)+"(5*%&"=O@%"(5)("*7&'(&"\$+"),')? ".*+*7*?\$&%F"

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C.LG,!WO!=()&H+&#" @+(&'7'\$%&"I@O"Q)>LE*'+#%"/"C)"L&("@+:\$*'+.&+(

I@O"Q)>LE*'+#%	I*.7&\$(\$*+"	b*("I*.7&\$(\$*+"	=E+\$8\$>)+("#\$88&"&
+/#! ".#\$:(8*4\$	1;02"	1;01"	"
A)("/"88\$?\$)(\$*+	1;2U"	1;0W"	!"
A*?\$(\$>)">)'&&"	1;1W	1;1Y"	"
A*?\$(\$>)"7&'%*+)?"	1;GW"	1;0G"	"
(',%('	1;G3"	1;0W"	"
!E&+>/"&M7&'\$&+>&	"	"	"
;/0%*.*)*\$:(8*4 \$	1;30"	1;RY"	"
@#,>)(\$*+)"?&'&?"	G;2Y"	G;24"	"
A\$:)(&"%&>(*"	1;YU"	1;2U"	"
&M7&'\$&+>&"	1;2Y"	1;24"	"

b*(&J<"t"GGWF\$+#\$>)(&%"%\$E+\$8\$>)+("#\$88&'&+>&)"("5&"1F12"?&:&?F

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-*L&+">#*H+ "-/"H5&(5&""""+*((" (5&/"%&':&"\$@%5)("8)>&.)'L&(">*.7&\$(\$*+"&\$5&"
-/"7'\$:)(&"8\$'.%" ""*(5&""=O@%F" S+(&'&%(+\$E?/;" (5&"):&)'E&"?*)?(/"\$+&M"*8" I@O%"8*."
>*.7&\$(\$:&"=O@%"%"%?"\$E5?/"5\$E5&"(5)+"(5*%&"%&':\$+E"\$+ "=O@%" "7&'(\$+E"\$+ ".*+*7*
B,)%\$K.*+*7*?/" >+#\$(\$*+%F" T5\$%" .)/" -&" &M7?)\$+&# -&>),%&" H\$(\$@%5)("%&"
>*.7&(&"\$+.")'L&("%)"&"(5&".\$+\$+E">*7*')(\$*+% "IO6@<IO")+#" @b!A;"H5\$>5">)" /" (*,
)>(\$:\$(\$% ""8%(')(&E\$>"&?&:)+>&"8*""(5&">+ ,(/;"%"H&??)"% "(5&"-'*)#>)%(\$+E">*.7)+/"Tgb"
H5\$>5;)">> *'\$+E" ("\$(%"%(')(,(&%;"\$%"&"%7*+%\$-?&"8*""&?&:)+("++K>* ..&'>\$)"E*)?%"%,>5
%7'&)\$+E" #&. *>)'(\$>" 7?,')?\$%.F" T,+'(\$+E)(\$>,"?)">5)')>(&'%(\$>," #)(') %5*H%" (5)("
I@O%"\$+ ">*.7&\$(\$:&"=O@%"H&'%"%\$E+\$8\$>)+(?/" .*&"?\$L&?/"(*"-&"%&?&>(&#"8*""(5&\$"7)')(\$
)88\$?\$)(\$*+; "-,(?"&%%?"?\$L&?/"(*">*.&"8* ".7*%\$(\$*+% "8*7*?\$(\$>)"(',%(")+#"5):&"7'\$*""E&+>
&M7&'\$&+>&" (5)+ "*(5&"")77*\$+(\$&&M7&>(&#;" >*.7&(&+>&" H)%")" .*&" \$.7'()+("

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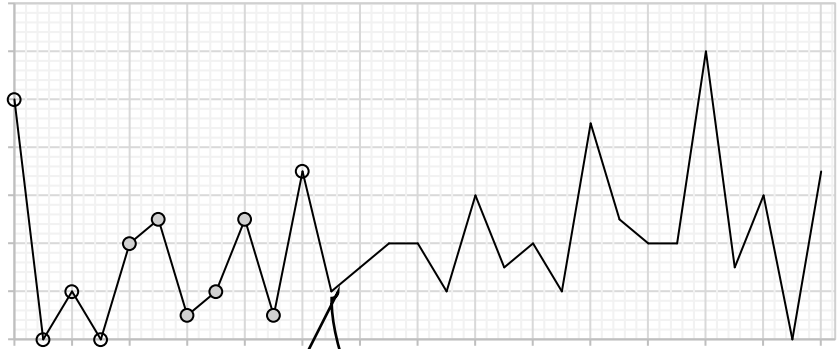
>5)')>(&'\$%(\$>" \$+" >*.7&(\$(\$:&" =O@%F" Z5&&'&)%" (5&/" 5)#" %\$. \$?)'" &#,>)(\$*+" ?&:&?%")+
7'&:\$*,%="O@"&M7&'\$&+>&"(5)+"+*+K>*.7&(\$(\$:&"=O@X%)")77*\$+(&&%;"(5&/"H&'&".*&"?L&
(*"5):&".)+)E&'\$)?"&M7&'\$&+>&"\$+"(5&"7\$:)(&"%&>(*F"T5\$%"&:\$#&+>&".)/" &M7?)\$+"(5&"8)>
(5)("I@O%)")77*\$+(&#"\$+"7*!(")+#(")+%O@%H5\$>5"*7&)(&%" .*+*7*?\$&%" _;"#&%7\$(&
-&\$+E" (5*%&" H\$(5" (5&" ?*H&%(" ?*)?(/" \$+ #&M&%;" 5)#")(" (5&" %).&" (\$.&" -&?*H"):&')E&"
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C#1!JH)\$0+9*!;!&,-!./+)%01)%*!\$)5!%#1!;,19%'6\$;!&H9;1!!
!" >*.7?&(&" 7\$>('&" *8" (5&" #/+)\$.>% " *8" I@O")77*\$+(.&+(% " '&B,\$&%" ?*\$((\$+E")("'
'&?)(\$*+%5\$7"H\$(5" (5&"&?&>(*)"?>/>?&;"*""5*H")77*\$+(.&+("#&>\$%\$*+%")'&".)#&")>>*'#\$+E"
(*"(5&">5)+E&% "\$+"E*:&'+\$+E">*)?\$(\$*+%F" S+"*'#&'" (*"\$#&+(\$8/" (5\$%"7*(&+(\$)"?>*++&>(\$*+
#)("%"&M).\$+&#"\$+")(&.7*')?#\$.&+%\$*+)">*"%%"(5&"&+(\$'&"-%&':'\$*#F"T5\$%)"+)?/%%
\$%"\$.7*')+("%"\$+>&)">?*%&"&?)(\$*+%5\$7"H\$(5" (5&"&?&>(*)"?>/>?&".)/" -&"\$+ #&\$>)(\$:&"*8" (
'&?&:)+>&" (5)(" ?*)?(/" >+>&'+%" 5):&" \$+" (5&" >+(-801@)77*\$+(.&+("#&>\$%\$*+%"
N@++%&'Ka&#&+)%(\$L"01GU)PF""

V*"" (5\$%" 7,7*%&%;") -'\$&8" #&%>'\$7(\$*+" *8" (5&" I5\$?&)+ &?&>(*)"?>/>?&" \$%" +&&#&
6,\$+E" (5&"8\$%(" (H&+(/"/&)'%)")8(&""(5&"'&('+" (*"#&.*>)">/"I5\$?&"H)%"E*:&'&#"-/"(5&"
>&+(&'K?&8(" >*)?\$(\$*+" >+8*'.&#"-/" (5&" 7*?\$(\$>)" 7)(\$&%" (5)(" *77*%&#" A\$+*>5&(X%
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0111P;"D\$>)"#""<)E*%"N0111K011YP")+#"C\$>5&??&"Q">5&?&("N0111YK01G1P">*"%&7*+#"(*"
7&'\$*#F"T5&%&"(H&+(/"/&)'%"H&'&"8*??*H&#"-/"%)E&"*8"%H\$+E%"\$+"7*H&'"&-(H&&+)">&+(
&?&8(")+#" '\$E5(KH\$+E" >*)?\$(\$*+%F" T5\$%" 7&'\$*#" %(')&#" H\$(5" (5&" '\$E5(KH\$+E" E*:&'&+.&+
=&-)%(\$k+"A\$j&)"N01G1K01GUP;"H5\$>5"H)%"8*??*H&#"-/"%)&>+*#"E*:&'&+.&+(*"8"C\$>5&??

N01GRK0100P\$E,'&" 0" \$??,%(')(&%" (5&" (*())?" +,-&" *8")77*\$+(.&+(% ".)#&")+,)??/"
#,'\$+E"(5&"&+(\$&"*--%&':&#"7&'\$*#;"%&7'))(&#"-'&)">5"7'&%\$#&+(\$)?"7&'\$*#F""



EDPQR,!@07*\$+(.&+(% "-/'&7&>(*)?)>/>?&
b*(&J" @)>5"7'&%\$#&+(\$)?"7&'\$*#" \$%" '&7'&%&+(&#" -'") #888\$+\$*#)(F+% "\$+>?,&#&J"
A)(\$>\$*" !/?H\$+" NA!P@#,)#" V'&\$" N@VP;" D\$>)"#" <)E*%" ND<P;" C\$>5&?&" Q)>5&?&(" NCQP")+#"
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&.&'E&F"V\$%(;")77*\$+(.&+(#"#&>\$%\$*+% "\$+"=O@%">?%&?/"8*??*H"(5&"&?&>(*)?)>/>?&F"<
)("&)">5"7'&%\$#&+(\$)?"7&'\$*#" \$(" \$%"%&&+" (5)(")E'&)(&" +,-&" *8")++)?)77*\$+(.&+(%)'&"
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'&E\$%(&'/&#"#,'\$+E"(5&"?)%("/&)" *8"*88\$>F"C*:&'&;"?)?%("21i"*8"(5&"(*)?)77*\$+(.&+(
#&>\$%\$*+% " >\$+>\$#&#" H\$(5" (5&" 8\$%("/&)" *8" .)+#)(&" \$+" :\$()??/")??" 7'&%\$#&+(\$
)#.\$+\$%(')(\$*+% ;"&:&+"\$+">)%&% "H5&'&"(5&"E*:&'&+.&+("(5)(">).&("7*H&"H)"%7)'("8"(5&"
)#.\$+\$%(')(\$*+% "\$(%"7'&#&>&%%"*F" T5&" *+?/" &M>&7(\$+"(1)95\$%#)8+AV'&\$X%"
)#.\$+\$%(')(\$*+"NG33UK0111P;"H5&'&">5)+E&% "\$+" &M&>,\$&".)+E&.&+(" *>,"&#" .*(?)"
#,'\$+E"(5&"%&> *+#")+#"8\$8(5"/&)" *8"(5&"7'&%\$#&+(\$)?"7&'\$*#F"S+)"%\$. \$?)"%&+%& ;">*.7)'

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>5)??&+E&% "8*" E*:&'&+(%F" Z5\$?&" .)+E&'\$)">*.7&(&+>&"\$%"&%&+(\$)"8*"',++\$+
-,%\$+&%%)>(\$:\$(\$&% "&88\$>\$&+(?/;"7*?\$((\$>)"?*)?(/"\$%"\$7*')+(8*"&+%, '\$+E"'&%7*+%\$
7*?\$(>/"E*)?%)"+#("5&"E*:&'&+(X%"7*\$'\$((\$&%F"6&%7\$(&"5&"&?&:)+>&"*8"(5\$%"\$%%,&;"H&
?\$((\$&)"-*,("5*H"(5*%&)"77*\$+(&+("#&>\$%\$*+%)"&".)#&;"H5)("8)>(*%")L&+"\$+(*")>>*,+(";
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(5&#/#+).\$>% "8"l@O")77*\$+(&+7%I5\$?&)+O@%"/")?/d\$+E"(5&">5)')>(&'\$%(\$>% "
)L&+"\$+(*")>>*,+("8*" "%&?&>(\$*+,")%H&??")%"\$("%'&?)"(\$*+%5\$7" H\$5"(5&"&?&>(*)">/>
#*\$+E"(5\$%; "S", %&#"+*" '\$E\$+)?")+#", +\$B, &#)(")%&(">*.7\$%\$+E"-*\$E')75\$>)"\$+8*').(\$*+"8"
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C/"8\$+#\$+E%"\$+#\$>)(&"5)("\$+I5\$?&)+="O@%"(5&'&"\$%)7'&#*.\$+)+("7'&8&'&+>&"8"
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?\$L&?/"(*-&"%&?&>(&#"5)+?*)?\$(("H\$(5*,"7*8&%%\$*+)"5&8&'&8&'&8&'&+>&"
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&M7&'&+>&"\$+" E*:&'&+(&+"*"7*?\$((\$>% "%,EE&%("%5)("H5\$?&".)+)E&'\$)" ,(*+."/")+#"
&88\$>\$&+>/'& "\$7*')+(">*+>&'+"8*" E*:&'&+(&+;"(5&\$"7*?\$(>/"E*)?%)'&")?%"*"'&?&:)+(F"
!77*\$+(&+("#&>\$%\$*+%)"%&&."(*"&M7'&%%) "E*:&'&+(&+)"88&'&8&'&8&'&+>&"(5"-,%\$+&%%)
)+#"7*?\$((\$>)"#\$.&+%\$*+% "8"="O@%F""

S+"&?)"(\$*+"(*"(5&)"-:&:"(5&"&.\$#&+>&"\$+#\$>)(&%("5)("?*)?(/"#*&%"+*("&>&%%)'?\$
&M>?,#&">*.7&(&+>&")+#"7*8&%%\$*+)?%"L\$??%F"l*+(')\$?/;)+)?/d\$+E"(5&)"EE'&E)(&#)#()-

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=O@ "%&>(*;"\$("\$%"8*,+#"(5)("?&:&?"*8"?/)?(/)"&"8'B,&+(?/"7*%\$(\$:&?/"&?)(&#"H\$(5"?&:
8">.7&(&+>&F"\$\$\$%("5&">)%&:"8*""&M).7?&:"\$+"%&>(*%"%,>5")%".\$+\$+E")+#"-'*)#>)%(\$+E;
H5&'&"(5&")77*\$+(&&%")&"(5&".*%("7*?\$(d&#;"-,(")("5&"%).&"(\$.&"(5&".*%(">*.7&(&+("
I@O%F"b*+&(5&?&%"%;"\$+#&M&%"*8"-*(5"?*)?(/)"#>*.7&(&+>&:")'/">+*%\$#&')-?/">'*%%"
\$+#\$:\$#,)?"=O@%\$+\$+E"\$("#\$88\$>,?(*"\$#&+(\$8/"E&+&')?7)((&'+%F""

D&E)'#\$+E"(5&"\$+%(\$,(,\$*+)?"8)>(*%;"(5&"&:\$#&+>&"\$+#\$>)(&%"(5)("I@O%"8'*. "=O@
'E)+\$d&#")%" >.7)+\$&%;" >+(*??&#" -/")" %\$+E?&" %7&>\$)?\$d&#")E&+>/")+#" H5*%&
)77*\$+(.&+("\$%"(5&"#&>\$%\$+"*8"(5&"-*)#;"5):&"&%7&>(\$:&?/"?H&'"?&:&?"*8"?/)?(/"(5)+
(5*%&")77*\$+(&#" \$+" =O@%" *'E)+\$d&#")%" %()(,(*"/" >*7*)(\$*+%;" >+(*??&#" #&'&>(?" -/"
'&%7*+%\$-?&" .+\$%(\$'%")+#" H5&'&")77*\$+(.&+(%" #&>\$%\$+"%")&" ()L&+" #&'&>(?" -/" (5
7&%\$#&+(F" [*H&:&';" (5&'&" \$%" +*" &:\$#&+>(\$&%)&/%&!.5*8' \$+%(\$,(,\$*+)?"
)")+E&.&+(%" 7'*.*(&" .*&" >*.7&(&+>&" \$+" (5&" I@OX%" %&?&>(\$*+" (5)+ (")#\$(\$*+)?"
%(',>('&% "#F"S+#&&#;"I@O%"8'*. "=O@%"H\$(5"(5&%&"8'*65(#*F") .L#m,2'F" W '& Tc 80)-?/"

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)E&+>/"#\$\$%>'&(\$*+X;"E0*&'!(\$-/9&(!"\$7\$B"/"')!"\$=)'*);"4RN4P;"Y3WKW00F""
 @%>*-)";"aFfF"NG3R0PF" r!* .7)'\$+E"%()(& +(&'7\$%&%")>'%%%"\$+(&+)\$*+)"-*,+#)'\$&%J"(
 !*'7*)>\$n+"g&+&d*?)+"#&"9,/)+)"+#"(5&"!*.7)+5`)"g)?&"#*"D\$**6*>&X;"\$+"a*+&%;"
 <FAF" N&#B9CF)"\$?(*&%&'3*\$'(\$ #133**/%*8\$;/9(.&'*3;" I).-#\$E&J" I).-#\$E&"
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 B*0*4\$'(\$;/0%&!.';*\$B*&3%*).'*;" A56" T5&%%\$;" 6&7)'(.&+(" *8" A*?\$(\$>)" =>\$&+>&;"
 C)%%)>5,%&((%"S+%((\$,(&"*8"T&>5+?*E/F""
 V,&+d)?\$#);"aF")+#"D\$>>,;>\$;"bF"N01GRPF"rT5&"&88&>(%"*8"7*?\$(\$>\$d)(\$*+*"+"7&'8*')>+&
 .&#\$)(\$+E***?&"*8"[DC"7')>(\$>%&X;"F*,'*6\$7\$B9C")\$B*&3/(("\$E80'('3.&!./("GK0YF"
 9)'&";"CFDF"NG33YPF" rT5&"(5&*/" *8"7,-?>" &+(&'7\$%&"&E(("%\$7\$B9C")\$
 !(8\$;/0%&!.';*\$?)/(/0)3;"YWNGP;"R2KGG2F"
 9\$?)#;\$;"VF"N0110PF"rA*?\$>/">'&#-\$-\$?\$/")+#"#&?&E)(\$*+(""\$+##&7&+##&+(""&E,?)(*/")E&+>\$&
 !">*.7)'(\$:&.&.7\$>?)")+/)%%&X;&(!"\$7\$?9&/%*!(\$B9C")\$B"/"");"3NYP;"RW4KR34F"
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 <&:\$KV),;" 6F" N&#B9CF"/W\$/(.\$ @*\$B"/'.)3\$ /7\$ F*29"!./(" I5&?(&+5).J" @#H)'#"
 @?E)"A,-?%\$5\$+EF"
 9\$??\$%;"CF;" a&+L\$+%;" 9F")+#" <&%%)'#;" 6F" NG3R0PF" rA,-?\$>K&+(&'7\$%&" 8\$+)+>&J" T*
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 I).-#\$E&J" I).-#\$E&"e+\$:&'%\$("/"A'&%%F"
 9*+dk?&dKQ,%().)+(&;"QF;"O?;\$)'&%;"!F;"!-)>);"AF;"C*?\$+);" @F"N01GYPF"r=&'>\$>\$*">\$:\$?"&-
 I5\$?&;")+k?%\$%\$% "#&" ?*%" #&'&>(\$:%" #&" 7\$.&" +\$:&?" h&'k'B,\$>* " N0114KG4PX;" D&:\$%
 !#.\$+\$%(')>\$n+"Av-?\$>)"_ "D\$**#&"a)+&\$*;"21NGP;"23KW3F""
 []8%\$;" TF;"f\$EE,+#,;"CF;" a*E&+%&+;" aF" NG3RWPF" r=(')(&E\$>)"7&M">*+8\$E,')(\$*+% "\$+%"%
 *H+&#"&+(&'7\$%&%X;"E)!8*0#\$/7\$S!(12*0*(.\$F*,'*6;"G0NUP;"WGUKW41F"
 []++)";"TFCF"N01GRPF"R&\$/00/(\$A*!". @R\$G @*\$F*.9&(\$7\$B9C")\$>6(*&3@'%\$(\$ @*\$X('.*8\$
 =!. *3;"C)+>5&%(&'J"C)+>5&%(&"e+\$:&'%\$("/"A'&%%F"
 [*?;\$-),E5;" 9F@F;" [*(*+;" 9F")+#" <&H\$%;" 6F@F" N01GUPF" rA'&%\$#&+("%)+#" 7)'(*+)E&X
 E0*&'!(\$-/9&(!"\$7\$B"/"')!"\$=)'*);"2RNUP;"G10UKG1U0F"
 [**#;" IF")+#" <#E&;" CF" N011YCF@*\$B"/'.)3\$ /7\$ B9C")\$ =*&,')\$ H!&2!(3R\$ F*6!&83Y\$
 ;/0%* .*)#Y\$+/#!#. #\$(8\$H"!0*;"OM8*#J"OM8*#"e+\$:&'%\$("/"A'&%%F"
 [*+;"CF"NG332B7'')!"\$?)/(/0#\$/7\$B9C")\$E80'('3.&!./("I).-#\$E&J" I).-#\$E&"
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[,-&';"aF6")+#"=5\$7)+;"IFDF"N01GGPF"rA*?\$(\$>%;"#&?&E)(\$*+")+#"-'&,>)'>/X;"\$+"9**#\$+;"
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#&"#\$&>(\$:%"&+)E&+>\$)%'"&E,?)(*\$)%"\$+#&7&#;#S\$+@%#X\$*D*&*)@/;"
U2N4P;"WU2KQY3F"

A&(&%;"9F"N01G4PF"rA*?\$((\$>\$%)(*\$+J"Z5)("\$\$%"\$"+#"H5/"%5*,?#"H&">)'&pX;"\$+"b&,5*?#
g)+5**+>L&";" =F")+#" g&'5&/" <F" N&#%;#P;*&!(.3\$!(8\$ B/"'.')3R\$ E\$ D**")!.*\$
H!"!()*;" <*+#+J"A)?E'):&F""

D)h&:\$>,"@F;"9*);"VF")+#"A) #'*; "IF"N0114PF"r<*% "7,&%(*%"#&'&>(\$:%"&+&?"@%()#"#15\$?&
[>\$)"+ "%\$%(&.)"#&"E&'&+>\$)"7v-?>)X;"\$+"g)?#&7;7�#P?3.18/Y\$V"Z\$::R\$
D'&*))"](\$BKC")!\$#\$/0%&!3\$BKC")!3;"=)+(\$E*J"l&+(*"#&"@%(#\$%"Av-?>*\$%F""

D)h&:\$>,"@F"N01G3PF"r@?"&.7?&* "7v-?>* "&+"I5\$?&,"\$#&)% "7')")%)"P;#&\$.')%.*X;"
;"@""*(!\$8*\$!"\$E80'(3.&!)](\$8**\$?3.18/;"GNQP;"3K0RF""

D).).('\$;"DF"NGR3WPF"r<&)"#&'%5\$7"%(/?&% "\$+%"()(&K*H+	&+(\$/7\$Q&%"X\$
S!(12*0*(.;"G4N0P;"UUK22F""

D).).('\$;" DF" NG33GPF" rI*+(*??\$+E" %()(&K*H+&#& +(&'7\$%&%X;" \$+" D).).('\$;" DF")+#"
g&'*+;"DF"N&#&P."5!./(\$!(8\$;/(&/"\$/7\$=!. *1>6(*8\$?(*&%&'3*3;"Z)%5\$+E(*+"
6IJ"T5&"Z*"?#"Q)+LF""

D*-%*+;" ZF!F" NG3Y1PF"!"5*8\$:(893.&#\$(8\$B9C")\$>6(*&3@'%;" <*+#+J" 9&*E&
!??&+"y"e+H\$+"<(#F"

D*%&K!>L&'.);" =F" NG3RYPF" rD&8*!.\$+E" 7,-?>" -,&,>)">/" (5*,E5" &>*+*. \$>"
\$+>&+(\$:&%p"-/9&(!"\$/7\$+!6Y\$?)/(/0)3Y\$!(8\$>&2!(5!./("0NGP;"G4GKGYGF"
=)77\$+E(*+;"6F@F")+#"=(E?\$(d;"aF@5N1G3R3WPF)#\$E(!"#3'3\$!(8\$S!(12*0*(.;"

YNUP;"2YWK2R0F"
=5?&\$8&";"!F")+#" g\$%5+/" DF" NG33UPF" rA*?\$((\$>\$)+@+	&%"X\$- /9&(!"\$/7\$
?)/(/0)3;"G13NUP;"332KG102F"

=??:)"AF"N0113PF" *\$<10*\$ /7\$F*!3/(R\$G*) @(/)&!3\$!(8\$B/"'.')3\$'(\$;@"";"e+&:&%\$("/
A)"L;"A!J"A&++%//?)+\$)"=()(&"e+&:&'%\$("/A'&%%F""

=\$(%(&.)" #&" @.7'&%)%" Av-?>)" N01GYPF" ln#\$E*" =@A;" =)+(\$E*;" 9*-\$&'+" #&" I5\$?&F
5((7JssHHHF%&7>5\$?&F>?s>*#\$E*K%&7sF""

T5)>5&";"CF"N01GWPF"rT5&"&%5)7\$+E**8"&>*+*. \$>."L&(%")+#"(5&"%()(&X;"\$+"f\$+E;"6F")+
<&" 9)?z%;" AF" N&#%#7P29&(2\$?9&/%*((\$ =!. *3\$ '(\$;&'3'b&H" o*LJ" OM8*#"
e+&:&%\$("/A'&%%F"

T\$*?&;"aF"NG33UPF"rT5&"\$+(&+)?*"E)+\$d)(\$*+"*8"E>47&8\$(X)/(/0)\$B!%*&3;"
UY;"GK03F""

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g)E?%)%\$+#\$;" CF" N011R)PF" r9*:&'!+)>&")"+E&.&+(%" 8**" %()(&" *H+&#" &+(&'7'\$%&%X;" T5
Z*?'#"Q)+L"A*?\$>/"D&%&)">5"Z*'L\$+E"A)7&";"U2U0;"GK4YF""

g)E?%)%\$+#\$;" CF" N011R-PF" rT5&" &88&>(\$:&+&%%" *8" -)'#%" *8" #'\$&>(*%" *8" %()(&K*
&+(&'7'\$%&%"\$+\$#&:&?*7\$+E">*,+('\$&%X"T5&"Z*?'#"Q)+L"A*?\$>/"D&%&)">5"Z*'L\$+E"A)7&";
U2W3;"GK40F""

g\$>L&'%;" aF")+#"o)"*H;" 9F" NG33RPF!"/(R\$E(\$?)/(/0')\$E(!"#3'3;" I).- '\$#E&;"
C)%%)>5,%&((%J"CST"A'&%%F""

g\$>L&'%;" aF")+#"o)"*H;" 9F" NG33GPF" r@>*+*.\$>"7&'%7&>(\$:&%"*+"7\$8)(\$8)7\$+X;"
?)/(/0')\$B*&3%*).' ,*3;"2N0P;"GGGKG40F"

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F*29"!./(; "b&H"o*"LJ"Q)%\$>"Q**L%F""

Z\$?%*+;" aF{F" NG3R3PF" H9&*!9)&!)#;" b&H"o*"LJ"Q)%\$>"Q**L%F""

Z*?'#"Q)+L"NG332PF&*!9)&!.3\$'(\$H93'(*33R\$G@*\$?)(/(0')3\$!(8\$B/"')3\$/7\$Q/, *&(0*(.\$
>6(*&3@'%;" b&H"o*"LJ"OM8*#"e+\$:&'%\$(/"A'&%%F""

Z*?'#" Q)+L" N01GUP&%/&!.*\$ Q/, *&(!)*\$ /7\$ =!. *1>6(*8\$?(. *&%&'3*3R\$ E\$ G/"W'.;"
Z)%5\$+E(*+"6IJ"Z*?'#"Q)+LF""

q\$8;" aF" NG3RGPF" rC)+)E&'\$)?"%(')(&E\$>" -&5):\$**"\$+\$+%()(&K*H+&#" &+(&'7'\$%&% " _ "-,%\$+&
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q\$8;" aF" NG3R4PF" r@M7?)+(*!/" >*+>&7(%" *8" .)+)E&'\$)?"%(')(&E\$>" -&5):\$**"\$+\$+%()(&K*H+
&+(&'7'\$%&%J"!..?(\$+)\$*+)?%/(9&!"\$7\$:(.*&(!./(!"\$H93'(*33\$=.98*3;" GUNGP;"
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"5,65,#;&I\$!J#;&5\$#9 %(9!"5+,(!%(!"@&9(! K">LG<">M!	L(;,(! <#?!N20!	E&\$&\$8	:'#)'5,B! "5,65,#'&5\$	L(:('\$,#9&O(%	P,(=&%('\$QC5#,	GR(:)'&H(QP,&H#(:(;5,QS\$%(6(\$%('\$! L&,(;5,=!<	"5*6('&'&5\$!
G*6,(=#!J#;&5\$#9!%(P(',I9(5!KGJAPM	<#?!1TN4	E&\$&\$8	:'#)'5,B! "5,65,#'&5\$	L(:('\$,#9&O(%	C5#,%!	GR(:)'&H(QP,&H#(:(;5,!	"5*6('&'&5\$!
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C#\$;5!%(9!G=#%5!% "@&9(!KC#\$;5!G=#%	L(;,(! <#?!N1W1!	V&\$#\$;(!	:'#)'5,B! "5,65,#'&5\$	L(:('\$,#9&O(%	P,(=&%('\$!	GR()&H(<	"5*6('&'&5\$!
X(9(H&=&I\$!J#;&5\$# %(!"@&9(!KXYJM	<#?!N1N2!	C,5#%#=#&\$8	:'#)'5,B! "5,65,#'&5\$	L(:('\$,#9&O(%	C5#,%!	SS\$(6(\$%('\$!L&,(;5, K:(\$#(!;5\$D&,*(%JM	"5*6('&'&5\$!
G*6,(=#!%(!95= V(,5;#,,&9(=!%9! G=#%5!KGVGM	LV<!< NQN112!	X,#\$=65,!	:'#)'5,B! "5,65,#'&5\$	"(\$,#9&O(%	C5#,%!	GR(:)'&H(!	E5\$5659B
G*6,(=#!%(! X,#\$=65,'!%(! P#=#Z(,5=!E('5!:[A! KE('5M	<#?!N4WW	X,#\$=65,!	"5*6#\$B!	"(\$,#9&O(%	C5#,%!	GR(:)'&H(!	E5\$5659B
"#=#!%(!E5\$(%#!%(! "@&9(!:[A]!K"E:AM	<#?!N2/1 !	:(,H&(;=!<	"5*6#\$B!	"(\$,#9&O(%	C5#,%!	GR(:)'&H(!	"5*6('&'&5\$!

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2'=%(')*.%/O-""!H=-((# *	2D2*	847697866L*	6876Y7866C* 4*	4*	6*	6*	6*	6*	6*	6*	3%H)/*
<%-,#*E)&.%F%*^),#? *	2D2*	8666*	8Y74478668* 4*	6*	6*	6*	6*	6*	6*	6*	3%H)/*
0/G%""*_#V@"G#%*<%\=#/	2D2*	455M*	455C* 4*	6*	6*	6*	6*	6*	6*	6*	D(#±
A=KI&*A)'(-H)*!"G%(%)>-H%{	E2TA0 *	8676578649*	V(##&O 8*	4*	4*	6*	6*	6*	6*	6*	N%FB#"#O*PI
A%,[&*.%S%/*.%,K-%/) *	E2TA0 *	6476C7864L*	L676M78649* 8*	8*	4*	4*	6*	6*	6*	6*	J-S#(%*P
A)K#(O)*!"#\$%&'()*N-%&FB*J)K"#O#	E2TA0 *	6576Y78646*	L476M7864L* 8*	8*	4*	6*	6*	6*	6*	6*	J-S#(%*P
.,-,"%*E#(-&)*.%O%"R&	E2TA0 *	467487866X*	4C7878646* 8*	8*	4*	6*	6*	6*	6*	6*	N%FB#"#O*P
A)'(-H)*.(-O[K%""*!?[F%(*Q-%"H)*	E2TA0 *	647467455X*	647487866C* 4*	4*	4*	6*	4*	6*	6*	4*	D(#±
J#(')*>-"%(*P)=,l *	E2TA0 *	6476X74559*	647657455X* 8*	8*	6*	6*	6*	6*	6*	6*	D(#±
A)')a)*A%G#&O[/*2"-/#OFB#	E2TA0 *	4558*	4559* 4*	4*	6*	6*	6*	6*	6*	6*	!";-& *
_#(H-)*<-,l&#?*E)(%H%*	E2TA0 *	4556*	4558* 4*	4*	6*	6*	4*	6*	6*	4*	!";-& *
<)(H#*+%G%((#O#*E%(OZ&#?	T>+ *	4556*	4474474559* 4*	4*	6*	4*	4*	6*	6*	6*	!";-& *
.(%))*Q=(O%)*A=-?T%H"*#	T>+ *	8L74474559*	4Y767455M* L*	L*	4*	6*	4*	6*	4*	6*	D(#±
A#&!*.) (O%?%(*_%&?*	T>+ *	457467455M*	4574878666* L*	L*	6*	6*	4*	6*	4*	6*	D(#±
J%K")*J-S#(%*2FB#&-\#	T>+ *	8C76L78664*	8L76478669* 8*	8*	6*	6*	4*	6*	4*	6*	3%H)/*
1%&-#"*D#(&R&#?*U)V(-FB	T>+ *	4976X78669*	L676978646* 4*	4*	4*	4*	4*	6*	6*	4*	3%H)/*
E%=()*>%!"I/*A%F?:&/W	T>+ *	6576Y78646*	6C76C78649* 8*	8*	4*	6*	6*	6*	6*	6*	J-S#(%*P
.(,#&*^")(-%*3[V#?*E)=(#*	T>+ *	4976X78649*	697687864C* 8*	8*	4*	4*	4*	6*	6*	6*	N%FB#"#O*PI
!"-F-%*Q-%"H)*.[(')K%*	T>+ *	4676L7864C*	457487864C* 8*	8*	6*	4*	6*	6*	6*	6*	N%FB#"#O*PI
<%-,#*#*!H=-((#*Qbaa%	T>+ *	457487864C*	4X7487864Y* 6*	6*	4*	4*	4*	6*	6*	6*	N%FB#"#O*PI
E-H=#"*0",#)*>%#"#K#&-O)*	.)((#)/*.Q*	6476M74556*	6Y74474556* 6*	6*	6*	6*	4*	6*	6*	4*	!";-& *
E%(-)*D#"&#(*U"#&#(	.)((#)/*.Q*	8874474556*	697487455M* 4*	4*	6*	6*	6*	6*	6*	6*	!";-& *
A#&!*3%K(%S%*3%()&)	.)((#)/*.Q*	697487455M*	6476M78666* 4*	4*	6*	6*	4*	6*	6*	6*	D(#±
E%(Z%*_)"#%'*3%/F%(.)((#)/*.Q*	8666*	6974678666* 4*	4*	6*	4*	4*	4*	6*	6*	D(#±
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