



9, ) 25( , \* 1 / \$ 1 \* 8 \$ \* (

FUHGLWV PLQLPXP XPÀ\*1 "Ó eHA viE

3UHIL[	1XPEHU	6PHVWHU & RP	SQRPHHQWV
63\$1	± VW<HDU ,		
63\$1	± VW<HDU , ,		
63\$1	± QG<HDU ,		
63\$1	± QG<HDU , ,		

9,, \$ 33529(' 4%86,1(66 (/(&amp;7,9(6 FUHGLWV

7KHVH FRXUVHV IZOILOO D UHJLRQDO WUDFN FRQVLVWHQW ZLWK WKH ODQJXI

1R	&RXUVH	6PHVWHU & RP	SQRPHHQWV
	63\$1 ± 6SDQLVK & RQYHUVDWL	RQ	
	63\$1 ± 6SDQLVK \$PHU & XOWXUH & LYLOL]DWL	RQ	
	36& ± 3ROLWLFDO 6\VWHPV RI /DWLQ \$PHULFD +, 67 ± 5HOLJLRQ 6RFLHW\ LQ /DWLQ \$PHULFD 25 & 20		

1RWHLWK WKH DGGLWLRQ RI PRUH FUHGLWV 63\$1

DQG WZ

## Major Advisor

6WXGHQW 6XFFH' %XVLQHV V\$GYLVLQ - \$%

9LVKWWSS FDWDORU XQWIDQXHG OLQRU UHTXLUHPHQWV DQG & RXUVH 'H  
& RQWDFW WKH 6WXGHQW 6XFFHVMR & HQRWHLQWRUPDWLRQ