

& DPLOOD 3LPHQWHO#YD JRY  
8 6 'HSDUWPHQW RI 9HWHUDQV \$IIDLUV 9\$ %HGIRUG \*

& DPLOOD 3LPHQWHO#YD JRY

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(GXFDWLRQ

3K' &OLQLFDO LD a"LO&OLQL† -t\$WyD@ „çP ° p 0 °

3XEOLF +HDOWK \$GYLVRU R\$PLGMPHHDORR\ 3URGIUB ±  
 RI &DQFHU &RQWURO DQG 3RSXODWLRQ 6FLHQFH  
 ,QVWLWXWHV RI +HDOWK %HWKHVGD 0DU\ODQG  
 3UHVLGHQWLDO 0DQDJPHQW)H&DQFHU ,QVWLW ±  
 +HDOWK %HWKHVGD 0DU\ODQG  
 3XEOLF 3ROLF\ ,QWHUQ /RQJ 7HUP &DUH &RPPXC ±  
 5HVHDFK \$VVLVWDQW &HQWLRQRRUWHHDV&RQ ±  
 1HZ <RUN 1HZ <RUN

+RQRUV DQG \$ZDUGV

&DUHHU 'HYHORSPHQW \$ZDUG 9\$ +HDOWK 6HUYLFHV ±  
 2XWVWDQGLQJ &RQWULEXWZKELQURQWLRORQIV\$ZDUG  
 6FLHQWLWQLQJ 5HVHDFK\$ZDUGHULDWULFV 6RFLHV  
 3UHVLGHQWLDO 3RVWHU \$EVWUDFW \$PHULFDQ \*HULD  
 \$OLFH 6 +HUVK 6WXGHQW 6FKRODUVKLS \$FDGHP\+HI  
 ,QWHUQ /HDGHU \$ZDUG 1DWLRQDO ,QVWLWXWHV RI +  
 3UHVLGHQWLDO 0DQDJPHQW )HOORZVKLS 2IILFH RI ±  
 (OLJDEHWK %ORGJHWW +DOO 6FKRODUVKLS %DUG &R ±

(GXFDWLRQDO \$FWLYLWLHV

(GXFDWLRQDO /\$GHEOLVKWSDWLRQFHQG  
 0HPEH(GXFDWLRQ 3ODQQQLQJ &RPPLWVHH 1HZ (QJODQ ±  
 &OLQLFDO%HQWUR 0DVVDFKXVHWWV  
 0HPEH6WXGHQW 5HVHDFK\$ZDUGHULDWULFDO DQG 3RSXODWLR ±  
 3URJUDP 8QLYHUVLW\ RI 0DVVDFKXVHWWV 0HGLFDO ( ±  
 3HHU 7XWRU ,QWHUPHGLDWH %LRVWDWLVWLFV 8QLY ±  
 7HDFKLQJ \$FWLYLWLHV DQG &RXUVHV

\$GYLVVQJ DQG 0HQWRULQJ

3RVWGRFWRUDO 7UDLQHHV

+HDWKHU 'DYLSDG8QFHG )HOORZVKLS 3URJUDP LQ +  
'HYHORS3RQWGRFWRUDO )HOORZ 5ROH ,QIRUPDO 0I

8QGHUJUDGXDWH 6WXGHQWV

0LFKDHO 7RS &HQWHU IRU +HDOWKFDUH 2UJDQLJDWL  
5HVHDFK 3URJUDGXBWGH,QJWHUQ 35URDFWLFKQW6KLSHUY

.QYHVWLJDWLRQ

&XUUHQW

9HWHUDQV +HDOWK \$GPLQLVWUDWLRQ  
7LWOH 'LVDJJUHJDWLRQ RI \$VLDQ \$PHULFDQ DQG 3DI  
3URPRWH +HDOWK (TXLW\  
'HVFULSWLRLQW \$VLDQ \$PHULFDQV \$DQ33EDFLQJFR,QIDR  
IDVWHVW JURZLQJ 9HWHUDQ JURXS\ OLWWOH LV NQF  
FKDUDFWHULVWLFV DQG KHDOWK DQG KHDOWKFDUH C  
KHDOWK \$DQVXREJURXS\ LV D FULWLFDO ILUVW VVHS  
HOLPLQDWH KHDOWK GLVSDULWLHV DQG DFKLHYH KH  
RI 'HSDUWPHQW RI 'HIHQVH DQG 9\$ GDWD WR VXSSRU  
9HWHUDQV \$VLPV IHVLELQPHURHG GRWD VRXUFH W  
RI \$3, 9HWHUDQV :H ZLOO H[SORUH FRPELQDWLRQV  
SHUVRQQHO UHFRUG DVVHV KRZ YDULDEOHV LQIO;  
9HWHUDQVFRGLIIHUHQWLDWHG E\ VXEJURXS\ \$LP &  
:H ZLOO VWUDWLI\ WKH FRKRUW IURP \$LP E\ VXEJUR  
VHUYLEFH HUD KHDOWK VWDWXV DQG VHOHFW KHDOW  
7RWDO  
5ROH 3, HIIRUW

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9HWHUDQV +HDOWK, \$GPLQLVWUDWLRQ  
7LWOH \$SSO\LQJ 3RVLWLYH 'HYLDQFH 0HWKRGV WR +  
0DQDJHPHQW LQ &RPPXQLW\ /LYLQJ &HQWHUV  
'HVFULSWLRQ 8QUHOLHYHG SDLQ LV KLJKO\ SUHYDOF  
7KLV &'\$ FDSLWDOLJHV RQ WKH LPPLQHUV UHPRYDO F  
WR GHYHORSQMXVWHGPHDVXUHV WKDW PRUH DFFXU  
PDQJHPHQW \$LP 8VLQJ 9\$ DGPLQLVWUDWLYH GDWE  
XQDGMXVWHG SDLQ PHDVXUHV DSSO\ ULVN DGMXV  
DQG YDOLGLW\ DQG LGHQWLI\ KLJK DQG ORZ RXXV\  
, ZLOO XVH TXDQWLWDWLYH VXUYH\ DQG TXDOLWI  
SHUIRUPLQJ &/&V FRQWUDVWHG ZLW\$KUTRDFLWDWLYH  
K\SRWKHVV RI FRQWH[WXDO IDFWRUV DQGS\$RVRDQ  
GHYLDQWV , ZLOO WHVW FDXVDO UHODWLRQV KLSV X'  
PHWKRGV \$LP , ZLOO DGDSW DQ H[LVWLQJ QXUVLQ  
XVH LQ 9\$ &/&V XVLQJ HPSLULFDQ HYLGHQDULWRQV  
RSWLPDO SDLQ PDQDJHPHQW\$SKL\$DQGLRIG&H& VWDNHK  
PDQDJHPHQW H[SHUWV ZLOO SURYLGH IHGEDFN RQ \  
D GHYHORSPHQWDO IRUPDWLYH HYDOXDWRORSHRIRUXDQ  
&/& WR DVVHV WKH LQWHUYHQWLRQV IHVLELOLW\  
WHVWLQJ LQ IXWXUH ZRUN  
7RWDO  
5ROH 3, HIIRUW

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9HWHUDQV +HDOWK \$GPLQLVWUDWLRQ 3,ILVIRRI 3,XU  
 7LW4XHDOLWDWLYH VWXG\ RI \*5(&& &RQQHFWWS&RPLPHQW  
 SHUVSHFWLYHV RQ IDFLOLWDWRUV DQG EDUULHUV WI  
 'HVFULSW\LRQ&RQQHFW HQKDQFHV DFFHVV WR JHULDV  
 9HWHUDQK ZRPSOH[ PHGLFDO SUREOHPV DQGHULDVNDR  
 \*HULDWULF 5HVHDUFK (GXFDWLRQ DQG&OKALEBSP&K  
 EDVHG RXWODQLFHQWVZRDNLHJKWZRDNRZ WRIGFWRIU&LW  
 LPSOHPHQWDWLRQ DQG PDLQWHQDQFH RI \*5(&& &RQQ  
 7RWDO W\$ %HGIRUG +HDOWKLDUH 6\VWHP  
 5ROH & UHODWH

& D P 3LP HQWC03+ 3K

3DJH RI

0DGULJDO & 0LOOVLPHEWHHLEWPDQQ & 6QRZ \$ &DPS & +WCRJHPDQ  
DGDSWDWLLRSQBPHQWDWLRCEBVEBQWMLWWSULQJOWBPLQXVILQHJ WKH  
)5\$( 7KH \*HURQVHFRVJLRQLFDOO\ SXEOLVKHG DKHDG RI SULQW GRL



& D P 3IP HQWC03+ 3K

3D H R I

%RRNV &KDSWHUV

8OEULFKW







& D P 3LP HQWC03+ 3K

3DJ RI

0LOOV3LPHQW & %DOPHU -\$ 6QRZ \$/ :HZLRUVNL 1- \$O  
)RUPDWLYH HYDOXDWLRLRHO QHDPZMZRURUWR JXLGH  
FRPPXQLW\ OLYLQJ FHQWHUV 9\$



& D P03LP HQMCO