[redacted]

'DW3HUSDUHG

$ ('8&$7,21 $1' $&$'(0,& 48$/,),&$7,216

(GXFDWLRQ			
	%6VXPPD FXP	'LHWHWLFV	8QLYHUVLW\ RI
	06	$OOLHGWK 6FLHQF	8QLYHUVLW\ RI
	3K'	1XWULWLRQDO 6FLI	8QLYHUVLW\ RI
		'U -DQHUVWHWW 3K5HU	

3RVWGRFWRUDO 7UDLQLQJ			
	3RVWRFWRUDO	1XWULWLRQ $JLQJ	,QVWLWXWH IRU
	)HOORZ	0XVFXORVNHOHWDC	5HVHDUHEUHZ 6
		'U 0DULDQ 7 +DQQDQ 6F	/LIH+DUYDUG 0H
			6FKRRO
±	3RVWRFWRUDO	1XWULWLRQ $JLQJ	%,'0& +DUYDUG
	)HOORZ	0XVFXORVNHOHWDO 5HVHD	7UDQVODWLRQD
		'U 0DULDQ 7 +DQQ	$JLQJ 7UDLQLQ

$SSLQWPHQWV			
	$VVRFLDWH 3	'HSDUWPHQW RI %L	8QLYHUVLW\ RI
SUHVHC		1XWULWLRQDO 6FLH	0DVVDFKXVHWV
	1XWULWLRQ 3	'HSDUWPHQW RI %L	8QLYHUVLW\ RI
SUHVHC	'LUHFWRU	1XWULWLRQDO 6FLH	0DVVDFKXVHWV
	$GMXQFW)DF	0DUFXV ,QVWLWXWH	+HEUHZ 6HQLRU
SUHVHC			+DUYDUG 0HGL
			$IILOLDWH %R

8 6 %RQH DQG ,QLWLDWLYH <R ,QYHVWLJDWRU\	8 6 %RQH DQG -LY &RPSHWLWLY DFFHSWDQFH	
$JLQJ DQG &KUF 5HVHDUFK ,QWH 3RVWHU &RPSHV :LQQHU	$PHULFDQ 6RFLHW &RPSHWLWLY DQG UHVHDU	
<RXQJ ,QYHVWL	$PHULFDQ 6RFLHW &RPSHWLWLY 0LQHUDO 5HVHDUF DQG UHVHDU	
6HYHQWK)HOOR 0HWDEROLF %R	$PHULFDQ 6RFLHW 6HOHFWHG S 0LQHUDO 5HVHDUF DQG WUDYHO UHFLSLHQW	
0DU\ )UDQFHV 3 'LHWDU\ 6XSSOH 5HVHDUFK 3UDF	1DWLRQDO ,QVWLW 6HOHFWHG S DQG WUDYHO UHFLSLHQW	
$PHULFDQ 'LHWI $VVRFLDWLRQ 2 'LHWHWLF 6WXG	$PHULFDQ 'LHWHW 6FKRODVWLF	
* -DQH +DUWPD 6FKRODUVKLS 5	$PHULFDQ 'LHWHW 6FKRODVWLF	

% 352)(66,21$/ $&7,9,7,(6

3URIHVVLR	QDO 6RFLHWLHV	
SUHVH	$PHULFDQ 6RFLHW 0HPEHU 5HVHDUFK	
SUHVHQ	$PHULFDQ 6RFLHW 0HPEHU	
SUHVHQ	$PHULFDQ 6RFLHW 1XWULWLRQDO (SLGHPL 6HFWLRQ &KDLUV %LRORJ 1XWULWLRQ&KDLU 1XWULWLRQ (SL 5,6 0HQ	
	$PHULFDQ &ROOHJH RI 5 0HPEHU	
	$FDGHP\ RI 1XWULWLRQ &RQQHFWLFXW 'LHWHWL	0HPEHU

3, .HOVH\ 0DQRDQJ

'LHWDU\PWGLWDQGXHU DQG JXW KHDOWK DPRQJ I
86'$ $
3, .HOVH\ 0 0DQJDQR

7KH LPSDFW RI WKH &2 9,'LF RQ SV\FKRVRFLDO KH
ORQJLWXGLQDOWFRKRFDW RIGXKHW86OLYLQJDQG
8QYLHUVLW\ RI 0DVVDFKXVHWWV /,RZH5HVRQWHUQI
3, .HOVH0DQJDQR
7KLV SURMHRQ DQOHLVXQGH1,FRKRUW WKH %R\
6WXG\ %35R6REWDLQ GKHWDPSHFDURLQWKH&2 9,LF
YXOQHUDEOH HWKQLF PLQRULW\ SRSXODWLRQ

%RQH PLFURDUFKLWHFWXUH GLDEHWHV DQG FKI
DGXOWV
1,+5 1,$05 $5
&R, HIIRUW .HOVH\30.DWKHUDQRH 4XFKnST`0€-|$Z

FRQUHLQJ SURWHFWLRQ DJDLQ%VRQRVW0HDUSRURGVLV LQ KXP
EMRQH (SXE 'HF

.URQRUS +PDPDU /H-H7KL+QGDQDJQ.R 2Q PRRG DQXGUDRWRLGYHILOJDQ
HQRXJHDV KHDOWKLHYULDRSRGUFKHLQHGWILXFQ'HOLJKW 3URPRWH
)LJXWLH /DQJXDJH ,QFUHDVHV 3HUFHLYHG (QMR\PHQ+WDDQ
&RPRXQLFDWLR2Q

0DOGRG&DRQW$U/HU1DR6H(O:DU'9G 9HOH]0DQJD.QR$VVRFLDWLRQV E
JXWLFRUELRPH DQG VKRUW FKDLQ IDWW\ DFLG SURGXFWLR
DPHLOWGHE\ OLY[HDX$FHDG 1XWU 'LHF HGRL
MDQG (SXE $XJ

1RH6(0DQJD.QR0DW-W*HULII-L/W'KDZV+RXJK%HV%LJR6UDQXGFN.H/U$6+
0HGLUDQHDQ DQG $OWH(DWDQJLYHG+LHDOWDKUH DVVRFLDWHG
5LFDGXOWVKUR%3RXHWURQ 5LHFDSQRXVB7LH 6WHULFDQ -RXUQD
1XWRUQLW9LROXPH ,VVXH -XQHKWWS3DJHGVRL RUJ

1RH(6 $UHYDOR 630DQHJDQ1=90HOH] 0VR'QXZJKHV % 7XFNHU .
DWLXWGVH EHOLHIVEHKQGYKRHDRQWHKKHDOWKQ+LPVRSQJQ&DUIDEWHQR
2VWSHRVUR)HE GRL V $

4XLQ/Q (%0 *KD]0DQJD0R7KLQG + 7RZDUGV QWKHWDOWKWS$
SOLRWWX-GR\XUQDO RI $PHULFDQ &ROOHJH +HDOWK

0DQDRQ .0 1RHOD6K(QL6F6NH7X +LJKHU 'DLSUH,QWDRHLVDWHG¬¼\

$66 2&,$7(' 35(66 HHVEHORZ

0DQDR QDQ .0 .HQQ\ $0 7KH 5ROH RI 'LHW DQG HU1XWUL WLRQ D
WKH GQ (HU&XUU 1XWU 5HS GRL V

0F/HD Q 5 0DQJDQR +DDQ 07 .LHO '3 6DKQL 6 'LHWDU\ 3UR

L + H D O W K [illegible] P X V F O H

M 2 U W K R S H G 7 K L V [illegible] E H W W K [illegible]

5 D G L R

D * H U P D X E 3 O L F 5 D G L R H F W L R Q I R U 6 F L H Q G H Y L U R Q K H R W R J \ : H V W G H X W V F K) H U E 5 X Q G \ X Q N

$ V V R F L D W 2 H Q G 3 U H V V

D 0 H G L D $ R U 9 R O Â ¦ ¶ E'IÜ I Í• .F u'JúÀ $ V V R F L D W pH D O¬¼ ¼ • pÍ• .F u'JúÀ

V L J Q D W X U H Q J P H Q W D O Q Z L W K R X W G H O D \ L Q W K H S U R V H F X W L R Q
2 V W H R S H U L R 6 W X G H \ U L F D Q 6 R F L H W \ R I D Q H X U R 2 % F R P H D U F K L W H F W X U H
2 U Q D P H Q W R I 3 R V W H U Q D W L R Q

3 X W & U D 5 L P % X 6 K H S K D R M Q R Z * D J H 0 D Q J D . Q R , P S D F W L H W D U L 3 U
6 R X H U F Q X 0 H C 3 H U F R P , D Y Q L F Y H R % H K D Y L R U H D L Y D Q D 6 R F L H W \
$ Q Q X % L H Q W L I L F % D H D W L % R J H 0 '

0 D Q D R . 0 1 R H O 6 (/ D L & 4 3 D U Q H O / + X 2 K G V R Y % D V 7 X F N '
$ V L R F W L R Z Q H E H G H U H G X L W D Q G H Y P H J W D E R E O S W H F L D F Q P H W
S D W K Z D P R Q J 3 X W R 5 L F K D H Q G 1 G X K 0 E R Q Z H L 6 K H Q R W 5 L F V D Q
2 V W H R S H U L R 6 W X G H \ U L F D Q 6 R F L H W \ R I D Q H X U R % F R P H D U F K L H Q W
0 R Q D W U & S R U W H U Q D W L R Q

3 X W & D D O G R Q D G R $ D / D Q J R H Q R 6 ([S O R W R U \ 6 W X G \ R I 0 L F U
' L V W H Q D Q 8 Q G H U S X Z D X G L R G 3 R I & D U L E E H D Q / D W L Q R $
1 X W U Q L W $ Q 6 F X L H Q W L Q L % R W H W R Q E V W H U S Q H V H Q W D W L R

0 D Q D R . 0 % D U P D V K L - 9 H O H] 0 K 1 H R H D W 6 (Q R & R P J H Q L W
$ Z D Q H V R I % R Q H + H D O W K & E P / X Q L W Q F Q J D J H P H Q W 6 \ P
0 D V V K X F V H W W V : R U F H O V W H Q W H Y W G H U R U F S V R W 4 S U ' [@ U Ä @ H Q W
0 D Q D R . 0 1 R H O 6 (% L J R U Q L D 6 - V 7 H X F N H V U H / U W D L D \ % D
$ W R L F G W Z L W K % R Q H 0 L Q H U H O U W R Q 7 L F D Q D E E Q W X $ P H

GLFWDWH \RXU PXVFXOR
,QYLWHG 3UHVHQWDWLRQ

0HQWRUV DQG GLQJWKH
5HODWLRQVKL
,QYLWHG 3UHVHQWDWLR

3URWHLQ URWHFWLYH S
VWUH QJWK DRXVWQDPLQJK
2VWHRSRURVLV 6WXG\
,QYLWHG 3UHVHQWDWLR

+HEUHZ 6HHQLRU/L
,QVWLWXWH 5RUFKH
3URJUHVV
,QVWLWXWH IRU $JLQJ 5
%HWK 0HGLFDO &HQWHU
7 3UHFWRUDO 7UDLQLQ

,QVWLWXWH IRU $JLQJ 5HVHDU
+DUYDUG 0HGLFDO 6FKR

) R U P 7 H D F K L 5 J H V R L G H Q W V & O L Q L F D K O)) H O O R Z W D Q G W 5 H V H D U F

QHHGV"
'LHWDU\P&DQGL&RDXWKRU +RPHQG UQHHZV
3URWHLQ D$QGH 8QLYHLW\ RWR&RQ
9LHZ
,QVLGH D 'LHWL0HGLDNHSHD 1%& &RQQHLWZ1H
&XSERDUG

8QLYHUV0DWVDFKXVHW&RPPLHZ$RWLHV

&HDU	/HYH	3URJUDP	5ROH
	'HSDUWP	)DFXOW\ 6HDUFK 3&RPPLDWH 6FLHQFHV	0HPEHU
	'HSDUWP	)DFXOW\ 6HDUF7K7 &RPPLWW (SLGHPLRORJ\	0HPEHU
	8QLYHUV	-XQLRU)DFXOW\ 0HQWRULQ	0HPEHU
	8QLYHUV	)DFXODW\ 6KH&RPPLWW7H7H%LH 'HSDUWP	0HPEHU
	&RROHJH	+XPDQLVP LQ ,QWHUSURIH)HOORZ0KLS 0HGLFDO 6FK 0$	0HPEHU
	&RJOH	&+6 8QGHUJUDGXDWH &RPP	0HPEHU
	8QLYHUV	3URYRVW3LRQ DQG 7HQXUH &RPPLWWHH	0HPEHU
	&RJOH	6F' 3RSXODWLRQ +HDOWK '	0HPEHU
	'HSDUWP	1XWULWLRQ 6FLHQFHV 3URJUD	&KDLU
3UHVH			
	'HSDUWP	/HDGHUV&RPPLWWHH %LRPHGLFDO 1XWULWLRQDO	0HPEHU
3UHVH			

8QLYLHU\VRI 0DVVD/RKXVHWWV 3UHVKLS $FWLYLWLHV

3UHVHQW3URJUDP 'LUHFWRU 'HSDUWPHQW 6FLHQFHV