

D Q G & K U L V : D O O L V

RWKHUZLVH RI WKH UHFRPPHQGDWLRQV ,QWHUYLHZ GDWD SURYLGHV HYLGHQ  
LQYHVWLJDWLRQV VDQFWLRQV DQG VDIH KDUERXU UHFRPPHQGDWLRQV :H ILQG  
GLVDJUHHG ZLWK SDUWLFXODU UHFRPPHQGDWLRQV SUHOLPLQDU\ RU LQ@P XQ

ZLWK WKH 73% UHFRPPHQGDWLRQV DQG UDLVH TXHVWLRQV DV WR ZKHWKHU UHF  
3UDFWLFDOO\ WKH ILQGLQJV RI WKLV VWXG\ IHHG LQWR WKH WD[ SROLF\ GHE  
3UDFWWLWLRQHU \*RYHUQDQFH DQG 6WDQGDUGV )RUXP DQG 3URIHVVLRQDO • pH S  
UHVHDUFK LQWR WD[ SUDFWWLWLRQHUV\ DWWLWXGHV DQG EHKDYLRXU DQG DGG  
,PSRUWDQWO\ WKH UHVHDUFK ILQGLQJV KDYH WKH FDSDFLW\ WR SRWHQWLDOO  
UHFRPPHQGDWLRQV ZLOO DFKLHYH WKHLU REMHFWLHYHV

.H\ZRUGWD[ SURIHVVLRQ LQYHVWLJDWLRQV VDQFWLRQV FRGH RI FRQGXFW V  
6HUYLHV \$FW 7D[ 3UDFWWLWLRQHUV \*RYHUQDQFH DQG 6WDQGDUGV )RUXP W

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'HS DUWPHQW RI \$FFRXQWLQJ (FRQRPLFV DQG )LQDQFH 6FKRRO RI  
6ZLQEXUQH 8QLYHUVLW\ RI 7HFKQRORJ\ (PDLO .GHYRV#VZLQ HGX DX  
ZRXOG OLNH WR DFNQRZOHGJH WKH IXQGLQJ RI WKLV UHVHDUFK YLD W

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ¶V UHVSQRQH WR WKH UHFH

,1752'8&7,21

7K ~~HU·5YHQJW65E8S~~ &WK 7\$6\$ ZDV GHVLJQHG WR U  
RSHUDWLRQ DQG EHKDYLRXU RI UHJLWVWHUHG WD[ SUDFW  
%\$6 DJHQWV DQG SUHYLRXVO\ WD[ ILQDQFLDO DGYLVH  
IHZ DPHQGPHQWV KDYH EHHQ PDGH UHJDUGLQJ UHJLW  
&RQGXFW &RGH WKH FLYLO SHQDOW\ UHJLPH DQG WKH  
PDNH XS WKH HVVHQFH RI WKH OHJLVODWLRQ 'HVSLW  
LQHILFLHQFLHV XQGHU WKH OHJLVODWLRQ DQG LPSURY  
JRYHUQLQJ ERG\ WKH 7\$6\$ DQG &RGH WKHUHLQ KDY  
7KHUH KDV DOVR EHHQ RSSRVLWLRQ DQG UHVLVWDQFH O  
ERWK LQGLYLGXDOV\* ~~LDQHQQ RWKWDQIEDDFWUBRQXQG~~ WKH UHFHG  
RI WKH 73% WKH 5HYLHZ ZDV RYHUGXH DQG KDV EHHQ Z  
VXEPLVVLRQV IURP LQWHUHVWHG SDUWLHV DQG NH\ VWDF  
\*LYHQ WKH ZLGH UDQJLQJ UHYLHZ RI WKH 73% DQG 7\$6\$  
WLPHO\ LQ WKDW LW SURYLGHV VRPH PXFK QHHGHG HPSL  
WKHPVHOYHV DV WR WKH PHULWV RI WKH 73% UHFRPPHQG  
WD[ SUDFWLWLRQHUV\ EXVLQHVHV DQG OLYHOLKRRGV  
\$UPVWURQJ DQG ~~6PYLRWK~~ DQG .HQDQG PRUH UHFHQWO\ 'HY  
ORUWRQ &XUUDQ DQG ~~Y.BOSQURVYLGHG~~ HPSLULFDO HYLGHQI  
WD[ SUDFWLWLRQHUV\ DWWLWXGHV DQG EHOLHIV 6LJQL  
EXLOG RQ WKLV SULRU ZRUN

7KLV VWXG\ JDWKHUV WKH YLHZV DQG LQVLJKWV RI W  
DFFHSWDQFH RI VHOHFWHG SURSRVHG UHFRPPHQGDWL  
LQYHVWLJDWLRQV VDQFWLRQV DQG VDIH KDUERXU 7KH  
GHEDWH LQFOXGLQJ WKH ZRUN RI WKH 7D[ 3UDFWLWLRQ  
73\*6) DV ZHOO DV WKH 3URIHVVLRQD 6WDQGDUGV &R  
ZKHWKHU WKH VDLG UHFRPPHQGDWLWLRQV DUH ILW IRU S  
SUDFWLWLRQHUV WKH DXWKRUW DUH RI WKH YLHZ WKDW  
IRU SXUSRVH KRZHYHU VRPH LPSRUWDQW FDYHDWV K  
FRQVLGHUDWLRQ 7KH HYLGHQFH KHUHLQ LQGLFDWHV WK  
FDVH WKDW WKHVH UHFRPPHQGDWLWLRQV ZLOO SRWHQWLD  
LQFOXGHV H[SRVXUH GUDIW OHJLVODWLRQ RQ VHYHUDO  
7UHDVXU\ /DZV \$PHQGPHQW 0HDVXUHV IRU &RQVXOWDWL  
%RDUG 5HYLHZ DQG PRUH UHFHQWO\ WKH 7UHDVXU\ /D  
&RQVXOWDWLRQ %LOO DORQJ ZLWK WKH 7D[ \$JHQW  
,QIRUPDWLRQ 5HJXODWLRQV D GLVFXVVLRQ RI ZKL  
DUWLFOH

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5H[ / 0DUVKDOO 5REHUW : \$UPVWURQJ DQG 0DOFROP 6PLWK ~~μ7K~~  
3UDFWLWLRQHUV :HVWHUQ \$XVWUDOLDQ ~~μ7K~~  
\$XVWUDOLDQ ~~μ7K~~  
7UHDVXU\ /DZV \$PHQGPHQW 0HDVXUHV IRU &RQVXOWDWL  
5HYLHZ\ 7KH 5HYLHZ ZDV OHG E\ IRUPHU %RDUG RI 7D[DWLRQ PHPEH  
0DUVKDOO HW DO DERYH Q  
.HQ 'HYRV DQG 3DXO.HQQ\ μ\$Q \$VVHVVPHQW RI WKH &RGH RI 3URIHV  
± 6L[ <HDUV 2Q ~~μ7K~~  
.HQ 'HYRV (OL)DEHWK ORUWRQ 0LFKDHO &XUUDQ DQG &KULV :DOO  
6HOHFWHG 73% 5HYLHZ 5HFR ~~μ7K~~

H-RXUQDO RI 7D[ 5HVHDUFK



H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ¶V UHVSQRQH WR WKH UHFH

:LWK UHJDUG WR D FXUUHQWO\ WKH 7\$6\$ UHTXLUH  
LQYBWWXU\WLRQGDWLRQWDOLPH\$VRW@ODDVQBWLRQ IRU D EUHDFK  
DUJXDEO\ GUDZV RXW WKH WLPH LQYROYHG DQG KLQGHU  
IDLUQHVV QDWXUDO MXVWLPH SULQFLSOHV QHHG WR EH  
VLPLODU SURFHGXUDO IDLUQHVV LVVXHV DUH UDLVHG W  
SUHSDUH DQG GHIIHQG WKHLU FDVH DJDLQVW DQ\ SRWHQW  
UHFRPPHQGDWLRQ GRHV KDYH WKH SRWHQWLDO WR DGGU  
WD[ SUDFWLWLRQHUV DUH DEOH WR FLUFXPYHQW WKH LQ  
DFWLRQ E\ YROXQWDULO\ GHUHJLVWHULQJ EHIRUH D IRUF

:KLOH DFNQRZOHGJLQJ WKDW WKHUH LV D QHHG WR VX  
LQWHJULW\ RI WKH WD[ V\VWHP VXFK DV 5HFRPPHQGDW  
UDLVHG WKDW WKH UHFRPPHQGDWLRQV PD\ EH WRR EU  
)LQDQFLDO 3URIHVVLRQDQ\VLQGVWDWQGDWLRQW\ WKH SURSR  
ZLWK UHVSHFW WR LQYHVWLJDWLRQV PD\ XQLQWHQWLQI  
ZKR QHLWKHU KDYH WKH LQWHQWLQ QRU RSSRUWXQLW\  
SURPSWHG WKH UHFRPPHQGDWLRQV PDWHO\ OHDG WR LQF  
FRVWV ILQDQFLDO ULVN DQG :KHLQVNDWRH\ ,YFSUJXWEQQR  
HQVXUH WKH OHJLVODWLYH FKDQJHV GR QRW XQIDLUO\ L  
IRU WKRVH SUDFWLWLRQHUV ZKR GR WKH ULJKW WKLQJ W  
RU XQQHFHVVDULO\ KHDY\ EXUGHQV

5HFRPPHQGDWLRQ F WR UHPRYH WKH VL[ PRQWK WLPH I  
DUJXDEO\ FUHDWH SUREOHGV ,W LV SRVVLEOH WKDW WK  
DQG LQHILFLHQW LQYHVWLJDWLRQV +RZHYHU WKH GH  
UHYLHZDEOH GHFLVLRQ &XUHQWO\ WKH 7\$6\$ RQO\  
PDWWHUV WKDW DUH RXWVLGH WKH 73%¶V FRQWURO \$V  
IRUPDO LQIRUPDWLRQ JDWKHULQJ SRZJHDQ/HXQGQHFW XWIKHA 7\$

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ¶V UK

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ¶V UHVSQRQH WR WKH UHFH

3ULRU VWXGLHV KDYH DOVR LQGLFDWHG WKDW UHSXWDW  
FDQ VHYHUHO\ LPSDFW WKH SUDFWLWLQJ QMQLQW DHEJQDWH\ WKH UHJLVVWHU QHHGV WR EDODQFH WKH QHHG IRU SXEO  
WD[ SURIHVVLRQ ,QIRUPDWLRQ UHJDUGLQJ WKRVH SUDFWLQJ REOLJDWLRQV QHHGV WR EH SUHVHQW IRU VXIILFLHQW W  
FRQWLQXHG IXWXUH RSHUDWLRQ ZKHUH FRQWLQXDWLRQ

\$ORQJ ZLWK WKH SURSRVHG DPHQGPHQW LQ UHVSHFW WR  
WKH GUDIW OHJLVODWLRQ SURSRVHV WKH LQWURGXFWLR  
QHZ 'LYLVLRQ RI WKH 7\$6\$ 7KHH ZRXOG UHTXLUH  
DJHQW JLYH QRWLFH WR WKH 73% LI WKH\ DUH HPSOR\LQJ

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ¶V UHVSQRQH WR WKH UHFH

/ ,7(5\$785( 5(9,:  
7KLV VHFWLRQ SURYLGHV D EULHI UHYLHZ RI VRPH RI W  
RYHU WKH ODVW \HDUV UHJDUGLQJ WD[ SUDFWLWLRQ  
SHQDOWLHV VDQFWLRQV DQG VDIH KDUERXU SURYLVLRQ  
3DUW 'LYLVLRQ RI WKH 7\$6\$ LQFRUSRUDWHV WKH  
WKH NH\ DWWULEXWHV RIWDQJLQH DQG SODQHUV LQFOXG  
~~WZLXSHUJmWadNbw DQffyqhgVJng~~, Q LQYH ~~EDQH~~ WDQJ  
SUDFWLWLRQHUV¶ MXGJPHQWV KDYH EHHQ IRXQG WR EH  
PRUH OLNHO\ WR FKRRVH D :KOHYQR XWD E QPHHW DW RR XWKRHR DMW

H-RXUQDO RI 7D[ 5HVHDUFK

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURHVVLRQIV UHVSQRQH WR WKH UHFH

WKH 73% DOUHDG\ KROGLQJ DGHTXDWH LQIRUPLDWLRQ RQ  
LV FRXQWHU SURGXFWLYH DQG FDQ SRWHQWLDOO\ OHGD  
WKDW WKHUH LV QR QHHG IRU WKH LQYHVWLJDWLRQ 7KLV

\$ PXFK EURDGHU ERIGDVRH DWWHUVLQJ WKRSH WKRSH WKH ODVW VHD  
WKH LPSDFW RI VDQFWLRQV XSRQWDWLRQ EDODQFH EHWZHHQ SHQDOWLHV SHU VH DQG WKHLU HQIR  
H[DPSOH LW ZDV IRXQG WKDW SHUFHSWLRQV RI WD[ OD  
VWURQJHU WKDQ SHUFHSWLRQV RI HQIRUFPHQW DFWLQJ  
WKH \$7,0 FRQWUDVW RWKHU VWXGLHV KDYH IRXQG WKDW  
GHWHFWLRQ UHGXFHV WKHLU HIIHFVLYHQHV DQG WKDW  
FRPSOLDQFH +DDWWQW KFHQHVDU SHQDOWLHV WKDW ZHUH DOV



H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ\ V UHVSQRQH WR WKH UHFH

SXEOLVKKHLG/ ILQGLQJ ZDV DOVR FRQVLVWHQW ZLWK WKH  
FRQFHUQLQJ SRWHQWLDO HGXFDWLRQ GHILFLHQFLH

5(6(\$5&+ '(6,\*1

5HVHDUFK REMHFWLYH

7KH REMHFWLYH RI WKLV SURMHFW LV WR LQYHVWLJDWH  
WKH UHFHQW UHFRPPHQGDWLRQV PDGH FRQFHUQLQJ WKH  
VDIH KDUERXUV :H H[WHQG XSRQ WKH ZRUN E\ 'HYRV  
H[DPLQHV RYHUDOO SHUFHSWLRQV WR WKH 73% UHFRPPH  
7KH\ IRXQG WKDW ZKLOVW LQ PDQ\ FDVHV VXUYH\ SDUWL  
RU LQGLFDWLYH WKHPHV HPHUJHG ZKLFK FRPSOLFWDWHG  
LQYHVWLJDWLRQ

&RQVHTXHQWO\ WKLV VWXG\ H[WHQGV WKHLU ZRUN E\ JD  
SUDFWLWLQRQHU SHUFHSWLRQV \$V \$XVWUDOLDQ WD[ SUD  
SURSRUWLRLQ RI \$XVWUDOLDQ LQGLYLGXDO WD[SD\HUV D  
HQRUPRXV FDSDFLW\ WR LQIOXHQFH WD[SD\HU FRPSOLD  
FKDOOHQJH IRU WKH \$72 8QGHUVWDQGLQJ WKH DWWLWX  
ZKR DFW RQ EHKDOI RI WD[SD\HUV LV D NH\ WR LPSURYLG  
SURYLGHV DQ RSSRUWXQLW\ WR LQYHVWLJDWH IXUWKH  
SUDFWLWLQRQHUV LQ WHUPV RI WKH &RGH LQYHVWLJDWLI  
GLUHFWO\ DGGUHVVLQJ WKLV FKDOOHQJH

7KHUH LV DQ RYHUDUFKLQJ FRQFHUQ WKDW DOWKRXJK W  
WKHPVHOYHV DSSURSULDWHO\ VRPH HQJDJH LQ KLJK U  
ODXQGHULQJ DFWLYLWLHV ZKLFK LPSDFWV RQ WKH S  
LQYHVWLJ\ DQWWRQ UHOHYDQW WR WKH SURIHVVLRQ FRPPX  
VHWWHUV DQG W pW QVDIHH pV Q GQ\ DIFHHH P\Q Q7QJ



H-RXUQDO RI 7D[ 5HVHDUFK



H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ\ V UHVSQRQH WR WKH UHFH

VHOHFWLRQ RI SURIHVVLRQDO ERGLHV DV ZHOO DV WKH  
, QYLWDWLRQV WR SDUWLFLSDWH ZHUV SURPRWHG WKUR  
DYHQXHV

7D[ 3UDFWLWRQHV %~~BYHUGRZDUH~~ O\ QHZVOHWWHU µ

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURHVVLRQ¶V UHVSQRQH WR WKH UHFH

	)HPDOH	9 , &
	0DOH	16:
	0DOH	4/'
	)HPDOH	9 , &
	)HPDOH	9 , &
	0DOH	9 , &
	0DOH	4/'
	)HPDOH	9 , &
	0DOH	:\$
	0DOH	9 , &
	0DOH	9 , &
	0DOH	16:
	0DOH	9 , &

2I WKH WD[ SUDFWLWLRQHUV LQWHUYLHZHG WKH PDMRU  
FHQW IHPDOH ZKLFK LV FRPSDUDEOH RW RWKHOSUDHFCWLW  
ZHUh IURP 9LFWRULD ZKLOVW VLPLodu UHSUHVHQWDWL  
FHQW DQG 4XHHQVODQG SHU FHQW LV QRWHG \$V VX  
IURP 9LFWRULD FRPSDUHG WRHWKDMR8%WWWRDIWS\$VDEWVL  
LQWHUYLHZHG ZHUh EHWZHHQ DQG \HDUV RI DJH S  
DQG \HDU FRKRUWV :KLOH LW LV DFNQRZOHGJHG  
VL]H PHDQW WKDW WKH UHVXOWV ZHUh QRW WRWDOO\\ U  
FRKRUW WKLV ZDV H[SHFWHG DQG LV DFFHSWHG LQ FRQG  
)ROORZLQJ HDFK LQWHUYLHZ WKH WZR LQYHVWLJDWRUV  
DQG VDXUDWLRQ 7UDQVFULSWV ZHUh VXPPDULVHG DQ  
WKHPHV WR EHFRPH DSSDUHqw LQFOXGLQJ UHOHYDQW  
PHUJLQJ FDWHJRULHV 7KHVH LQWHULP VXPPDULHV IRUF  
WHVWLQJ EHWZHHpq&H52° VHK`pWWHVWLJDWRUV IRUZ

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURI HVVLRQ¶V UHVS RQVH WR WKH UHFH











H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ¶V UHVSΡQVH WR WKH UHFH

EH WKH PRUH UHOHYDQW DXWKRLW\ WR DFW ± DQG W  
DSSO\LQJ IRU H[DPSOH

«>(@YHQ LI WKH 7D[ 3UDFWLWLQHUV %RDUG ZDV S

H-RXUQDO RI 7D[ 5HVHDUFK



H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ¶V UHVSΡQVH WR WKH UHFH

SUDFWLWLRQHU PLVFRQGXFW 2XU ILQGLQJV DUH DOVR

7KH JRYH~~102~~ HQW



H-RXUQDO RI 7D[ 5HVHDFK

7KH WD[ SURIHVVLRQ\ V UHVSQVH WR WKH UHF

RIILFH ZDV YHU\ XQOLNHO\ WR PDNH D VXSHU>DQQX  
WKDW ZDV RQH RI WKH YHU\ IHZ WKLQJV WKDW WKH\  
KDYH D SHQDOW\ WKDW WKHUH ZHUHQ W D ORW RI P  
WKDW DSSHDOUV WR EH D VLPLODU VLWXDWLRQ WKDW  
PRPHQW ZLWK WD[ SUDFWLWLRQHUV 6R , WKLQN LW  
UDQJH RI RSWLRQV DYDLODEOH WR WKH 7D[ 3UDFWLV

3URSHU SURFHVV DQG SURFHGXUDO IDLUQHVV DUH IRXQO  
DFFHVV WR VXSSRUW DQG JXLGDQFH WKH ULJKW RI DSS  
DEVHQW IURP WKH H[LVWLQJ V\VWHP DQG VRPH TXHVWL  
V\VWHP VKRXOG FKDQJH

, ZRXOG KRSH WKDW WKH GXH SURFHVV VWLOO WDN  
VHULHV RI GLIIHUhQW VDQFWLRQV DQG IRU GLIIHUh  
KRSHIXOO\ WKDW ZRXOG QRW PHDQ WKDW WKH\ E\SD

7KH PDMRULW\ RI LQWHUYLHZHHV LQGLFDWHG WKDW LQF  
WKH SRZHU DQG LQGHSHQGHQFH RI WKH 73% KRZHYHU S  
UHLWHUDWHG ZLWK UHVSHFW WR VXSSOHPHQWLQJ WKH  
LQWHUFRQQHFWHGQHVV EHWZHQQ WKH 73% DQG \$72 H[  
HDUOLHU FUHDWH KHVLWDWLRQ E\ SUDFWLWLRQHUV

>\$@ ORW RI WKH VWDII KDYH PRYHG DFURVV DQG W  
DQG LW KDSSHQV LQ SXEOLF VHUYLFH HYHU\ZKHUH  
SHRSOH VD\ ZHOO DUH WKH\ GLIIHUhQW IURP WKH V

6LPLODUO\ SHUFHLYHG FRQIOLFVW RI LQWHUHVW DURV  
UHYHQXH FROOHFWLRQ

, WKLQN VR ORQJ DV WKHUH ZDV VRPH DELOLW\ IRU  
JHQXLQH WKUG SDUW\ DQG LI WKDW LV WKH \$\$7 W  
EHFDXVH \RX NQRZ \RX ZRXOGQ W ZDQW WKHP «RY  
>UHVSHFW RI@ « UHYHQXH FROOHFWLRQ

\$ VWURQJ PDMRULW\ ZHUUH VXSSRUWLYH RI 5HFRPPHQGDW  
GHWDLOHG UHDVRQV IRU WD[ SUDFWLWLRQHU VDQFWLRQ  
73% UHJLVWHU 2YHODOO WKH ILQGLQJV VXJJHVW WKDW  
DOWKRXJK WKHUH ZDV DOVR DFNQRZOHGJPHQW RI ZKDW  
UHVXOWK ñ•‡ 7Pu'BhH@03 DHVLVX FW@QP1LWZ•` ZBR H \$€





H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURHVVLRQ\ V UHVSQVH WR WKH UHFH

7KLV VRPHZKDW TXDOLILHG VXSSRUW GLIIHUV VOLJKWO  
ZKHUH LW ZDV H[SUHVVHG WKDW WKH JUHDWHU WUDQVSD  
HPSOR\HUV DQG FOLHQWV LQ ZDUQLQJ WKHP DJDLQVW X  
73% 5HYLHZ FRQFHGHG WKDW WKH UHJLVVHU QHHGHG V  
LQIRUPDWLRQ LGHQWL\ LQJ WKHVH DJHQWV 7KH VWXG\|  
ILQGLQJV E\ 'HYRV DQG FR DXWKRUW UHJDUGLQJ S  
GDPDJH ZDV HDUPDUN\ QGW\KH DR\W\K\ BHKUDQ G LW FRXOG DO  
HIIHFWLYH GHWHUUHQW DV \LQPG\LOFDDUOH G WLQH W\KRYH HOUQPHLU  
5HFRPPHQGDWLRQ DQG EHOLHYHV IXUWKHU FRQVXOWD  
)LQDOO\ WKLV VWXG\ SURGXFHG PL[HG UHVXOWV ZLWK U  
LQWURGXFWLRQ RI DQ GPLQLVWUDWLYH SHQDOW\ UHJ  
SUDFWLWLRQHUV ZKR GHPRQVWUDWH DQ LQWHQWLRQDO  
KDOI RI WKH SUDFWLWLRQHUV ZHUh LQ VXSSRUW RI D  
SDUWLFXODUO\ DGGUHVV WKH HJUHJLRXV WD[ DJHQW ,Q  
HJUHJLRXV SUDFWLWLRQHUV WR DFFRXQW DJDLQ IRUPL  
+RZHYHU FOHDU FKDOOHQJHV ZHUh FRQVLGHUHG DURXQ  
SURYH LQWHQWLRQDO GLVUHJDUG DQG VLPLODUO\ UDLV  
SUDFWLWLRQHUV VKRXOG EH WHUPLQDWHG LQVWHDG LI S  
VXIILFLHQW HYLGHQFH DQG SURRI UHODWHV WR WKH FRP  
WKDW WKHUH LV D JRRG ERG\ RI ODZ IURP ZKLFK WR G  
IUDPHZRUVN

« >, @ W V D WRXJK RQH EXW WKHUH LV D ORW RI F  
SHQDOWLHV DQG SHQDOW\ UHPLVVLRQV IRU \RX NQR  
GLVUHJDUG DOO WKRVH VRUWV RI WKLQJV WKDW FR  
IUDPHZRUVN ZKHQ \RX ZRXOG ILQG WKLV RU ZKHQ \RX  
WKLQN LW V 2. , WKLQN LW VKRXOG EH D WRRO WKD  
WKLQN LW FDQ EH FKDOOHQJLQJ WR ILJXUH RXW ZK

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ\ V UHVSQVH WR WKH UHFH

LQYROYHG LQ WKH UHJXODWLRQ RI WD[ DJHQW DFWL<sup>Y</sup>  
WD[ RIILFH DQG WKH 73% ERWK UHYLHZLQJ WKH DIID  
\RX NQRZ DQ XQQHFHVVDU\ GXSOLFDWLRQ <HDK VR  
SURPRWHU SHQDOW\ SURYLVLRQV DQG WKH GLVTXD  
FRPSDULVRQ RI KRZ WKDW UHJLPH ZRUNV ZLWK UHJD  
WKH VDPH SULQFLSOHV WR WKH GLVTXDOLILFDWLRQ

ORUH EURDGO\ WKH TXHVWLRQ LV ZKHWKHU WKH UROH D  
DQG EHFRPH PRUH LQGHSHQGHQW IURP WKH \$72

2YHUDOO WKLV VRPHZKDW TXDOLILHG VXSSRUW LV FRC  
UHFHLYHG ZKHUH LW ZDV DFNQRZOHGJHG WKDW WKHUH Z  
7KH VWXG\ \ V UHVXOWV DUH DOVR FRQVLVWHQW ZLWK WKH  
ZLWK UHJDUG WR WKH FDYHDWV DURXQG WKH FODULILFDW  
WKH SURFHGXUHV DQG LQGH<sup>7SKHHQ</sup> GRH<sup>YQH</sup> QH<sup>R</sup> H<sup>QW</sup> K<sup>H</sup> D<sup>VH</sup> J<sup>D</sup> <sup>Q</sup> H<sup>R</sup>  
5HFRPPHQGDWLRQ DQG EHOLHYHV IXUWKHU FRQVXOWD

7DEOH VHH \$SSHQGL[ EUHDNV GRZQ WKH ILQGLQJV EDV  
FRQFHUQ ZLWK IRU HDFK HOOPHQW RI 5HFRPPHQGDWLRQ  
TXHVWLRQV VHW

:LWK UHVSHFW WR VDIH KDUERXU

7KHUH ZDV VWURQJ VXSSRUW LQ SULQFLSOH VKRZQ IRU  
VDIH KDUERXU SURWHFWLRQV WR LQVWDQFH V ZKHUH WKH  
RU LQWHQWLQDO GLVUHJDUG ZLWK UHVSHFW WR WKH  
SURWHFWLRQ IRU FOLHQWV UHO\ LQJ RQ ± LH WUXVWLQJ  
SUHYDLO DQG EH UREXVW

6R , WKLN WKDW D 6DIH +DUERXU PHFKDQLVP LV FU  
D WD[ DJHQW KDV PDGH DQ HUURU RU IDLOHG RU  
VRPHWKLQJ RU GRQH VRPHWKLQJ HUURQHRXVO\ LW  
SHQDOLVHG IRU WKDW VLWXDWLRQ «

, I WKH WD[ SUDFWLWLQH KDV GRQH WKH ZURQJ WKLQJ  
± WKH DJJULHYHG SDUW\ FDQ WDNH VVHSV WR SURWHFW  
VWUDLJKWIRUZDUG ± KRZHYHU QRW DOZD\ V

>7KH@ &RPPLVVLRQHU OHW V VD\ JLYHV WKH WD[ SD  
DJJULHYHG SDUW\ DQG KH RIWHQ GRHV WKDW DQG V  
WKLV WD[ DJHQW DQG KH OHW \RX GRZQ RU KH RU V  
VXIIHUHG ± QRERG\ 7KHUH V QR FRQV<sup>WY\$</sup> H<sup>Q</sup> R<sup>Q</sup> H<sup>•</sup> L

H-RXUQDO RI 7D[ 5HVHDUFK

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ¶V UHVSQRQH WR WKH UHFH

«>7@KDW ZRXOG EH D JDPH FKDQJHU , GRQ W WKLQH  
DURXQG WKH ZRUOG WKDW VRUW RI DSSRUWLRQ SH  
LPSRVHG XSRQ WD[SD\HUV

\$V DOUHDG\ IODJJHG WKH EURDGHU UHJXODWRU\ IUDPHZ  
LV UHOHYDQW DQG UDLVHV RSSRUWXQLWLHV IRU HIIFLH  
DUH DEOH WR WDNH OHJDO DFWLRQ WR FRYHU FRVWV V  
WD[ DJHQW¶V LQVXUDQFH DOWKRXJK LW ZDV QRWHG V  
WD[SD\H&URWKUW DFWLRQ ZDV FRQVLGHUHG WR EH OHVV OL  
DFWLRQ LV VHWWOHG RXWVLGH RI FRXUW

,W V GLIILFXOW WR VXH D SURIHVVLRQDO , PHDQ D  
ILQDQFLDO FDSDELOLW\ WR FRPPHQFH OHJDO DFWL  
DJHQWV , PHDQ \RX ORRN DW \RXU DYHUDJH SHUVR

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQIV UHVSQRQH WR WKH UHF

7DEOH 6XPPDU\ RI 0DMRULW\ 3RVLWLRQV E\ 3UDFWLWL

5HVHDUFK 4XHVWLRQ	0DMRULW\ 3R
:LWK 5HVSHFW WR 6XSSOHPHQWLQJ WKH & RGH	
54 *2YHUDUFKLQJ DJUHHPHQW GLV DJUHI \$JUHH 3DU	WL5DHFRRPHQ
\$JUHH	
54 *&RQFHUQ DERXW WKH OHYHO RI JRYH &RQFI	QWURO DQG L
54 *&RQFHUQ DERXW WKH 0LQLVWHUV OD &RQFI	JWLVH
54 *&RQFHUQ DERXW WKH 0LQLVWHUV EHL &RQFHUQH	WR SROLWL
\$72LQIOXHQFH OHDGLQJ WR ELDVHG GHF	
:LWK 5HVSHFW WR ,QYHVWLJDWLQV	
54 *2YHUDUFKLQJ DDJUHHHHPPHQW GZLWK 5HF \$JUHH	RQ
54 *,QYHVWLJDWLQJ GH UHJLWVWHUHG WD[ \$JUHH 3DU	WQBOV LV D Y
UHVRXU5FHFRPUDHQGDWLRLQ D \$JUHH	
54 *&RQFHUQ LQYHVWLJDWLQJ GH UHJLWV &RQFHUQH	UDFWLWLQ
SULQFLSOHV RI QDWXUDO MXVWLFB SU	DLUQHVV UH
D	
54 *7D[ SUDFWLWLQHUV KDYH D ULJKW V 0L[HG	H\ DUH EHLQ,
5HFRPPHQGDWLRLQ E	
54 *&RQFHUQ WKDW UHPRYLQJ WKH VL[ P &RQFHUQH	UDPH ZLOO L
HIIHFWLHYHQHVV DQG HIIILFLHQF\ RI LQYH	V UH 5HFRPP
:LWK 5HVSHFW WR 3HQDOWLHV DQG 6DQFWLRQV	
54 *2YHUDUFKLQJ DJUHHPHQW GLV DJUHI \$JUHH	K 5HFRPPHQ
DQG	
54 *6XIILFLHQW SHQDOWLHV DUH QHHGHG 'LVDJUHH	QGHVLUDEOH
54 *7KH SURSRVHG VDQFWLRQV RIIHU EDC \$JUHH	HHQ UHJXOD
SURFHGXUDO IDLUQHVV	
54 *&RQFHUQ LQFUHDVLQJ VDQFWLRQV ZL 1RW &RQFH	SQBSU DQG
WKH 73% UH 5HFRPPHQGDWLRLQ	
54 *3URSRVHG SXEOLFDWLRQ RI IXUWKHU 1RW &RQFH	UWQHIG 73% UH
LPSUWVUDQVSDUHQF\ DQG SXEOLF WUXVW	PHQGDWLRLQ
54 *3URSRVHG GPLQLVWUDWLYH SHQDOV \$JUHH	OO EH HIIHF
ZLWK OXHVKO RI PLVFRQGXFW UH 5HFRPP	
54 *\$SSURSULDWH DYHQXHV RI DSSHDO D \$JUHH	G UHJDUGLQ
DGPLQLVWUDWLYH SHQDOW\ UHJLPH UH	DWLRQ

:LWK 5HVSHFW WR 6DIH +DUERXU

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ¶V UHVSQRQH WR WKH UHFH

LW LV FRQVLGHUHG LPSRUWDQW WKDW WKH 0LQLVW  
QRW LQ D NQHH MHUN IDVKLRQ 6LPLDUO\ WKH LQFOXVLI

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ¶V UHVSQRQH WR WKH UHF

RI WHPSRUDU\ RU SHUPDQHQW RXWFRPHV QRU DUH WKH\ SRZHU

\*LYHQ WKH SHUVSHFWLYHV SUHVHQWHG ZH FRQFOXGH DOWHUQDWLYH RU ~~DEGIPXHWWG~~ RD SASKUR Ø% RDØLQJ WKH SWR VXSSOHPHQW WKH &RGH 7KH DPHQGPHQWV ZLOO DGC WKH SURIHVVLRQ LV FOHDU RQ WR WKH QRWLRQ RI µIL[LQ] ZDV WR KDYH WKH JXLGDQFH GRFXPHQWV SXW GRZQ DV C PHDQLQJIXO FRQQHFWRQ EHWZHHQ WKH SURIHVVLRQ 73% QHFHVVDU\ H[SHUWLHV DQG XQGHUVWDQGLQJV XQGHUSLC LV VHHQ DV D FULWLFDQ SLHFH RI WKH SX]]OH DQG FDQ USUDFWLWLRQHUV LQFOXGLQJ FODULW\ RYHU WKH YDULRQ LQFOXGLQJ ZLWK UHVSHFW WR SURIHVVLRQDO ERGLHV D

:H DOVR UHIOHFW RQ WKH QHHG IRU GHFLVLRQ PDNLQJ WUDQVSDUHQW 2XU ILQGLQJV VXJJHVW WKDW GHFLVLRQ 0LQLVWHU LQFOXGLQJ WKHLU EDVLV RXJKW WR EH UHS KDYH D FRQWLQXLQJ UROH KHU HQVXULQJ WKH &RGH GE EXW WR DOVR KHOS HQVXUH WKH &RGH UHWDLQV LWV SUL RU DUJXPHQW KDG EHHQ SXW IRUZDUG ZLWKLQ 73% VXEPI IURP WKH SURIHVVLRQDO ERGLHV ,Q WXUQ WKH JRYH DQ LQWHQWLRQ WR DPHQG WKH ODZ WR HQDFW 5HFRPJRYHUQPHQW LQGLFDWHG LW ZRXOG FRQVXOW IXUWKHU 'HYRV DQG FR DXWKRUW VLPLODUO\ IRXQG FRQWUDV

)XQGDPHQWDO WR LQYHVWLJDWLRQV LV WKH LVVXH RI ZHOOEHLQJ 7KH 73% QHHGV WR HQVXUH DSSURSULDWH U WKH LQYHVWLJDWLRQV LW VWDUWV \$V SUHYLRXVO\ QRW WKH )HGHUDO %XGJHW KDV LQFUHDVHG IXQGLQJ DOORFDW WR DGGUHVW WKH FRQFHUQV UDLVHG

ORUH JHQHUDO\ ZH ILQG WKDW FODULW\ RQ WKH H[WHQ FDQ RFFXU ZLWKRXW WKH NQRZOHGJH RI WKH SUDFWL SUDFWLWLRQHUV H[SHFW DSSURSULDWH WUDQVSDUHQV DSSURSULDWHO\ UHVRXUFHG KRZHYHU WKH\ XQGHUVWD GLIIHU EHWZHHQ FDVHV :H UHLWHUDWH WKH EURDG SRZ VLJQLILFDQW LPSOLFDWLRQV LQFOXGLQJ OLPLWV WR GH VHFWLRQ RI WKLV DUWLFOH 7KLV LV RI SDUWLFXODU RI LQWHUYLHZHHV GHSHQGLQJ RQ ZKHWKHU WKH SUREOH NQRZOHGJH FRPSDUHG ZLWK PRUH HJUHJLXV DFWRUV \$ ZULWLQJ WKH JRYHUQPHQW KDG DOVR ~~ZSLXWEIO~~ UUHKJHDG GH [S RVI

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,W LV DOVR SHUWLQHQW WR QRWH WKDW VLQFH WKH FRPSOHWLRQ SODQV WR DEROLVK WKH \$\$7 DQG UHSODFH LW ZLWK D QHZ DSSHDO E %RGH ~~5HJLQH5HJLQH~~ 2QOLQH KWWSV ZZZ DDW JRY DX DERXW WK DGPLQLVWUDWLYH UHYLHZ ERG\ 7KXV ZKLOVW WD[ DJHQWV WKDW DU WKHUH ZLOO EH D IXQFWLRQDO FKDQJH WR WKLV SURFHVV LQ GXH FR 'HYRV HW DO DERYH Q 7UHDVXU\ /DZV \$PHQGPHQW 0HDVXUHV IRU &RQVXOWDWLRQ %LOO 'UDIW /HJLVDWLRQ 6FK 3W 6HH DOVR WKH ([SRVXUH 'UDIW ([ \$PHQGPHQW 7D[DWLRQ DQG 2WKHU 0HDVXUHV 1R %LOO FK µ\* R WKH 7D[ 3UDFWLWLRQHUV %RDUG ± 7UDQFKH ¶

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ¶V UHVSQRQH WR WKH UHFH

LQYHVWLJDWLRQV ZKHUH WKH SHULRG RI FRQVXOWDWLR  
GLVFXVVLRQ RI WKH SURSRVHG OHJLVODWLRQ LV RXWVL  
GHILQLWHO\ EH WKH VXEMHFW RI IXUWKHU UHVHDUFK

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ¶V UHVSΡQVH WR WKH UHFH

DJDLQ DQ LWHP WKDW FRXOG EH HQFRPSDVVHG ZLWKLQ V  
KLJKOLJKWV LQKHUHQWO\ WKH EHQHILWV RI WKH 73\*6)

:LWK UHVSHFW WR 5HFRPPHQGDWLRQ RQ VDIH KDUERX  
EXW D VWURQJ FDYHDW ZLWK KRZ WR RSHUDWLRQDOLVH  
QRWHG WKLV UHFRPPHQGDWLRQ :LWKRXW D QHZ GPLQL  
HQGRU\WK\LWWVWXG\ LQGLFDWHV IXUWKHU ZRUN LV QHHGHQ

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ[V UHVSRQVH WR WKH UHF

\$33(1',;

7DEOH 73% 5HFRPPHQGDWLRQV DQG \*RYHUQPHQW 5HVSRQVH

5HFRPPHQGDWLRQH		*RYHUQPHQW 1 RYHPEHU
7KH 5HYLHZ UHFRPPHQGV WKDW WKH OHJLVODWLYH LQVWUXPHQW SRZHU WR 3URIHVVLRQDO &RQGXFW WR DGGUHVV SUDFWLFHV 7KH OHJLVODWLYH LQVWUXPHQSWU SSSRFLHCVFKBQOISVDWR RWIKQIV&RUGIH ZLO DSSURSULDWH FRQVXOWDWLRQ ZLWK RYHUVLJKW	7KH 5HYLHZ UHFRPPHQGV WKDW WKH EH LQFUHDVHG LQFOXGLQJ LQWURGXFL:OKLQH KRIQIRIDWJDVQXQFHUR QV VLDQMRWLQV WKRH5YHUGJW5WSS ZKLFK FRXOG EH DSSOHYHGHWRLGHQLWLWILHUGH JDS EHWZHQQ HLVW DQG XQUHJLVWHUHG SUDFWLWLRQHUV D ,QIULQJPHQW QRWLFHV E HQIRUFHDEOH XQGHUWDNLQJV F TXDOLW\ DVVXUDQFH DXGLWV G LQWHULP VXVSHQVLRQV H SHUPDQHQW GLVEDUPHQW I H[WHUQDO LQWHUYHQWLRQ	UH7OKHYDQWHUQPHQWV XESHS RJUWHQWDKHUHFRPPH OHJLVODWLYH LQVWUXPHQW SRZHU WR 3URIHVVLRQDO &RQGXFW WR DGGUHVV SUDFWLFHV 7KH OHJLVODWLYH LQVWUXPHQSWU SSSRFLHCVFKBQOISVDWR RWIKQIV&RUGIH ZLO DSSURSULDWH FRQVXOWDWLRQ ZLWK RYHUVLJKW
		%RYHUGJIRYVWQFWQRVQQRSVRIZMUVKQHUIGF RWFRPHQGDWLRQV DSSOHYHGHWRLGHQLWLWILHUGH JDS EHWZHQQ HLVW OHYHO VDQFWLRQV 7UHDVXU\ ZLOO FRQVXOW ZLWK VWDNHKKROGSURYLGLQJ QHZ VDQFWLRQ SRZHVWRWKH

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ\ V UHVSQRQH WR WKH UHFH

7KH 5HYLHZ UHFRPH DPHQGHG WR HQDEOH WKH 73% WZRKIS XJERO\HMKQ PRQW QHRWDHLO\ W\Q DW\H DWKRQH V KRU IRU WD[ SUDFWLWLRQHU VDQFWLRQV LQFOXGLQJ WHUPLQDWLRQV RQ WKH 73% 5HJLVWHU ZKLFK LV SXEOLFO\ DYDLODEOH 6HH DOVR 5HFRPPHQGDWLRQ

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ\ V UHVSQRQH WR WKH UHFH

7DEOH :LWK 5HVSHFW WR 6XSSOHPHQWLQJ WKH &RGH ZLWK 0LQLVWHULD O 3RZ

5HVHDUFK 4XHVWLRQ 6HW ,QWHUYLHZHH 6SUHDG 3HUFHQWDJHV

.

-XGLFLDU\ SURFHVV OHJLV

2YHUDUFKLQJ DJUHHPHQW  
GLV DJUHHPHQW ZLWK  
5HFRPPHQGDWLRQ



H-RXUQDO RI 7D[ 5HVHDUFK

54

7D[ SUDEWLWLRQHUV KDYH D  
ULJKW WR NQRZ WKH\ DUH EHLQJ  
LQYHVWLJDWHG UH  
5HFRPPHQGDWLRQ E

7KH WD[ SURIHVVLRQ\ V UHVSRQVH WR WKH UHFH

&RGH SULQFLSOHV MXGL  
SURFHVV LQYHVWLJDWI  
SRZHU WDPHULQJ ZLW  
HYLGHQFH WD[

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQV UHVSRQVH WR WKH UHFH

TDEOH :LWK 5HVSHFW WR 3HQDOWLHV DQG 6DQFWLRQV

5HVHDUFK 4XHVWLRQ 6HW ,QWHUYLHZHH 6SUHDG 3HUFHQWDJHV

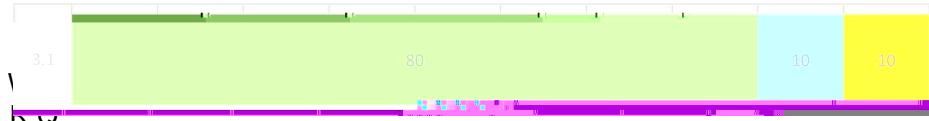
54

2YHUDUFKLQJ

GLV DJUHHPHQW

5HFRPPHQGDWLQ

DQG



7UXVW V\VVWHP WKH  
SULQFLSOHV RI WKH &RC  
VDQFWLRQV SURIHVVLR  
ERGLHV SURFHGXUDO  
IDLUQHVV

54

6XIIILFLHQW

SH

QHHGHG WR

FXU



-XGLFLDO SURFHVV VDQFW  
UHJLVWUDWLRQ VWDWXV  
EHKDYLRXU VHYHULW\ RI  
SHQDOW\ SURFHGXUDO  
IDLUQHVV IUDXG WHFKQL  
WKH SULQFLSDOV RI WKH &  
SDUOLDPHQWDU\ SURFHVV  
SUDFWLWLRQHUVV SURIHVV  
VDIH KDUERXU  
FRQVHTXHQFHV FDUOHVV

.

.

54

7KH SURSRVHG

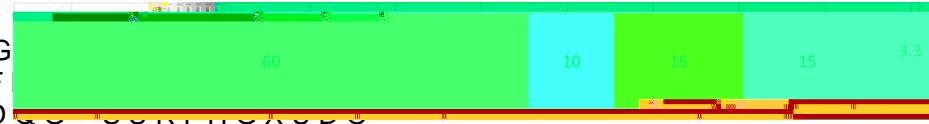
RIIHU EDODQF

UHJXODWLRQ DQG

IDLUQHVV

UH

5HFRPPHQGDWLQ



6DQFWLRQV SURFHGXUDO  
IDLUQHVV

54

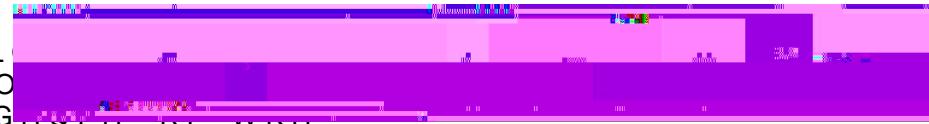
&RQFHUQ

L

VDQFWLRQV ZLO

DQG LQGHSHQGHQF

73% UH 5HFRPPHQGDWLQ



,QGHSHQGHQFH LVVXHV  
SRZHU

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ[V UHVSRQVH WR WKH UHFH

54  
3URSRVHG SXE  
IXUWKHU GHWD  
UHJLVWHU ZLGS ELSRQH  
WUDQVSDUHQF\ DQG SXEOLF  
WUXVW UH 5HFRPPHQGDWLRQ

5HJLVWUDWLRQ VWDWXV  
VHYHULW\ RI WKH SHQDC  
SURFHGXUDO IDLUQHVV  
MXGLFLDO SURFHVV W  
SULQFLSOHV RI WKH &RGH  
QXDQFH RI WKH UHJLVW  
SURWHFWLYH DSSURDF  
FRQVXPHU SURWHFWLRQ  
EDODQFH OHQJWK RI WLPH  
FRQWHQW F

54  
3URSRVHG DG  
SHQDOW\ UHJLI  
HIIHWLWLYH LQ CHDQEQJ ZEWR  
KLJK OHYHO RI PLVFRQGXFW UH  
5HFRPPHQGDWLRQ

'XW\ RI FDUH LQIRUPDWL  
JDWKHULQJ SURFHVV  
SURSRUWLQDWH WKH SH  
WKH SULQFLSOHV RI WKH &  
FRQILGHQWLDOLW\ WKH R  
SURRI DIIHFWHG SDUW  
MXGLFLDO SURFHVV  
\$SSHDO SURFHVV MXGLF  
SURFHVV

54  
\$SSURSULDWH  
DSSHDO DUH  
UHJDUGLQJ WKH SURSRVHG  
DGPLQLVWUDWLYH SHQDOW\  
UHJLPH UH  
5HFRPPHQGDWLRQ

3HUFHQWDJH U3HUPHQW DJH 3DU LDU \$HQWHDQH  
1R &RC 3DUWLDO &RQFHU &RQFHUQ V 1DRJUH&HOPHQW 3RVLWLRQ  
3URY

H-RXUQDO RI 7D[ 5HVHDUFK

7KH WD[ SURIHVVLRQ[V UHVSRQVH WR WKH UHFH

TDEOH :LWK 5HVSHFW WR 6DIH +DUERXU

5HVHDUFK 4XHVWLQR 6HW

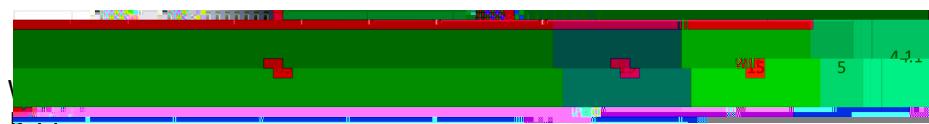
, QWHUYLHZHH 6SUHDG 3HUFHQWDJHV

54

2YHUDUFKLQJ

GLV DJUHHPHQW

5HFRPPHQGDWLQR



'XW\ RI FDUH SHQDOW\ SURWHFWLRQ LQQRFHQ OHJD SURFHVV

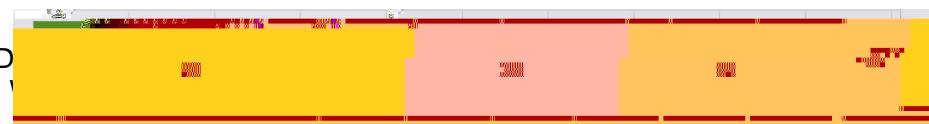
54

,W LV LPSRUWD

ZKHWKHU WKH

IDXOW LQ DGGL

SUDFV



2QXV RI SURRI WRXJK VLWXDWLRQ

54

7KH LPSRVLW

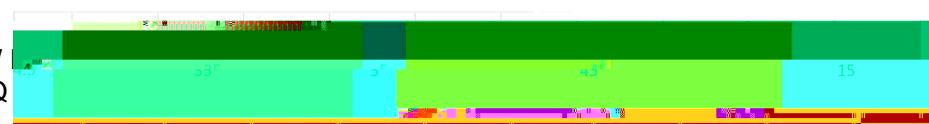
DSSRUWLRQPHQ

EHWZHHQ WKH

WD[ SUDFWLWLQRHU

LV

DSSURSULDWH



\$SSRUWLRQPHQW RI SHQDOW\ WKH FRPSOH[LW\ RI WKH V\VWHP GXW\ RI FDUH OHJD RI H[SHUWLHV MXGLFL SURFHVV LQQRFHQFH SHQDOW

54

7KH SURSRVHG

UHJLPH LV UHC

OHJD DFWRQ

UHFRYHU FRVWV



/HJD SDWK

3HUFHQWDJH \$ U3H0RQ0WDJH 3DU LDB USFHUQWMDHQV V 1DRJUH&OPHIQW 3RVLWLQR  
3URY