

Zappers: Technology-assisted Tax Fraud

Richard T. Ainsworth
Boston University & ADPTaxware
June 9, 2008 –FTA Annual Meeting

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- 5 Papers
- Theme: Market-place
- Skimming – traditional double till approach
- Phantom-ware:
 - Self-help
 - Factory Installed
- Zappers

5 Papers

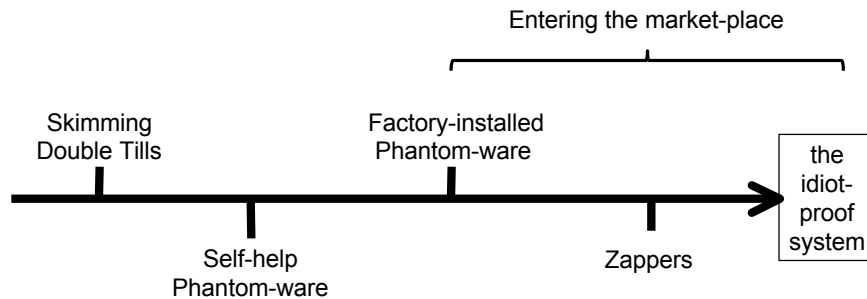
1. Zappers [Tax Lawyer]
 2. Phantom-ware [Tax Notes International]
 3. Solutions [Canadian Tax Journal]
German; Canadian; Greek
 4. SSUTA as a solution
 5. Final assessment
- } Works-in-progress

Available on SSRN

Theme: Market-place

- Skimming is an SME issue not LMSB issue
- Skimming has been an individual fraud issue, not a market-place issue
- Phantom-ware applications show skimming entering the market-place:
 - To purchase a particular ECR or POS system
 - Government push-back (**increase audits & certify**)
- Zappers have developed in response
 - Installers, rogue developers, smaller developers

Development Time Line



THE COMPETITIVE MARKET-PLACE

Greece – 10m people; 800,000 SMEs; 300,000 to 350,000 ECRs and POS systems; turnover of 30,000 to 40,000 systems per year; 300+ different machines (all certified); 50 importers and manufacturers – Germany & Italy (EU); USA, Japan, China (non-EU).

Skimming – the Old Fashioned Way

- Still a popular fraud – Double Tills
- Aleef Garage Ltd. (Nov. 13, 2007)
 - Family members - newspaper stands - Manchester, UK.
 - [Mustaq Hussain Patel; Mubarakali Ahmed Patel; Iqbal Ahmed Patel – 3 brothers]
 - £3.5million fraud
 - » £92m = turnover;
 - » 60 shops
 - » 250 + employees
 - VAT; CIT; PIT (of owners); PIT (of employees); SS & NHI (of employees); pay structure allows welfare qualification
 - Funds are funneled through an off shore Muslim charity
- SME fraud – not in publicly traded companies

Problem with Traditional Skimming

First paper pages 12 to 14

- Perception of detection:
 - Employees (unhappy/ ethical) may turn you in
 - Keeping a double set of books becomes too complex to keep up the fraud
 - Australia:
 - *Ronen* 2005 NSWSC 991
 - 1991 through 2001 – skimmed \$15AU to \$17AU
 - Income tax evaded \$8.125AU
 - Clothing stores
 - Manual skimming converted to digital when Australia adopts the GST in July 2000 – fear of detection is heightened as GST audits are anticipated

Phantom-ware (self-help)

- Modern ECRs can be re-programmed to eliminate the audit trail (critical records)
 - Z Reports (daily/periodic) – end of day report that records sales, taxes, media totals, discounts, voids, etc.
 - X Reports – same as Z Reports except they do not “reset” the system after being taken.
 - Electronic Journal – records all transactions (blow-by-blow) entered in the machine
- Programming is “secret” (not in user’s manual) – limit access [bad employee issues]

Examples of “Hidden Functions”

- Sales Data Reset:
 - Resets all sales data on the terminal to zero
- Turn Off Journal/ Turn On Journal:
 - Electronic journal can be set to not function
- Master Reset:
 - Clears out the entire memory of the till and brings it back to a blank default program – the till then determines which terminal it is by looking at others on the LAN and then prompts to import its program from one of the other terminals on the LAN

Example: CASIO TE-2000

Second paper pages 10-14

- *Cash Register Good Practice Guide*
 - EU Cash Register Study Group
 - Part of the Fiscalis Committee
- Use of a **refund** to skim cash - HMRC
 - Re-program Z Report not to record refunds
 - Re-program X Reports not to record refunds
 - Eliminate refunds from the Electronic Journal
 - Thus, the ECR nets refund against a sale, and records only a lower (net) sale amount, without a trace in Z Report, X Report, or Electronic Journal

Phantom-ware (factory installed)

- Does not require re-programming
- Secret (hidden) functionality built in to ECR
 - Not discussed in user's manual
 - Not visible in menu structure
 - Commonly revealed only in oral communications with
 - » Installer
 - » Sales representative
- The idea is to remove the need to re-program
 - Problem is the manufacturer loses “deniability”
 - These programs have only one function

Grand Café Dudok

Second paper pages 6 to 8

- Dutch case
 - LJN: AX 6802 (Jun. 2, 2006); LJN: BC5500 (Feb. 29, 2008)
 - IRS audit suspecting under-reporting of wages
 - On the second day of audit T/P asks for **help**
 - ECR supplier – Straight Systems BV
 - Software installed – Finishing Touch (based on 20/20)
 - Manager of Straight Systems explains “hidden function”
 - » Employee sent to train in use of “hidden functions”
 - Dudok begins use of “hidden functions” to disguise skimming that was used to pay unreported wages.

Problem with Phantom-ware

- Self-help phantom-ware requires careful programming – programming mistakes can be made – fraud can be revealed.
- Factory-installed phantom-ware makes the manufacturer liable – easier to prove knowledge of fraud (co-conspirator) with:
 - Installation of a dedicated fraud program
 - Help-desk support for the fraud program
- Zappers are the answer

Zappers v. Phantom-ware

Zapper

- Added-on & removed
- Normally used with POS system [multiple ECRs]
- No legitimate business purpose other than fraud
- “Hidden” physically
- Help-desk support needed
- Provided by installers, IT “free lancers,” ECR sales personnel

Phantom-ware

- Embedded in the ECR
- Normally used with stand-alone ECRs
- May have a legitimate purpose other than fraud
- “Hidden” programmatically
- Help-desk support needed
- Either comes with the ECR, or can be requested

Two US Zapper Cases

First paper pages 1 to 3

- Stew Leonard's Dairy (Norwalk, CT) - 1994
 - Custom made zapper (former NCR IT expert)
 - Zapper is kept in a hollowed out book in office
 - \$17m (IRS income tax audit) – Customs uncovered
- LaShish restaurants (Detroit, MI) – 2007
 - Zapper kept at owner's residence connected to ECRs at 13 restaurants
 - Skim \$20m (4 years) sent to Hezbollah (Lebanon)
 - CIA mole (sister-in-law); wife in prison
 - Husband is fugitive from US (in Lebanon)

Meet the Zapper

Note: this particular zapper requires a lot of manual intervention. There are more automated [idiot-proof] zappers out there. If the user is not careful with this zapper traces of the original data will be left behind and auditors can find it (if they know what to look for).



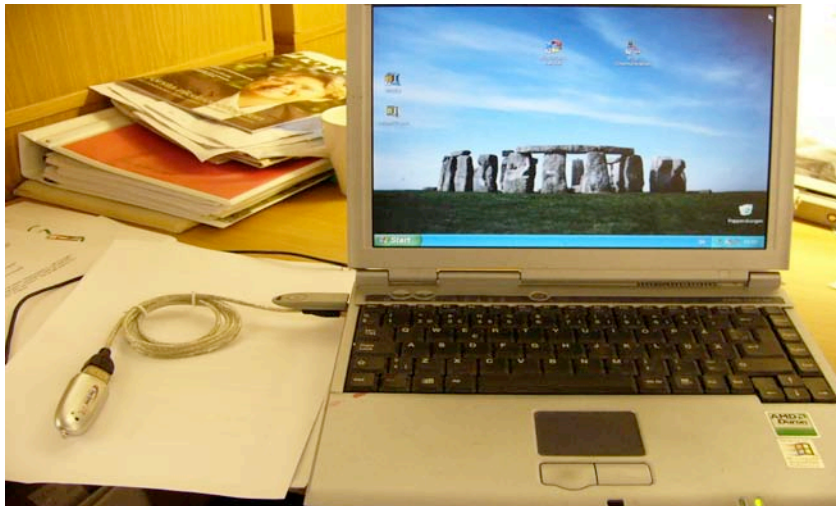
TT PI Electronique – cash register

Manufactured in Paris (since 1983)

Popular in Italy, Belgium, Portugal, Spain, Germany, Denmark, Australia, USA and North Africa.

Uses "Restodata" back-office program

Cash register is connected to a PC (in the back office) like the one on the following slide.



Back-Office PC

Notice the "dongle" (grey memory stick) protecting proprietary program

Notice the silver memory stick – this is the "zapper"

Restodata is programmed to automatically download **all** information about **all** transactions from **all** cash registers every morning at (for example) 5:00 am

So, before manipulation here is the
electronic journal
the sales report
the sales receipt

----- 208 AB
(TEL)
ORG NR
2006-10-05 15:02:41 ELECTRONIC JOURNAL UTSKRIFT - - 2005-03-11 00:00
--> 2005-03-11 23:59

Nr	Namn	Ant	SUM
21	LUNCH B	1	65,00
1	KONTANT	1	65,00
	MOMS 25%	1	13,00
TOTAL KVITTO			65,00
Direkt POS nummer: 1			
Bord NR: 0 GAST ANT: 1 Nyk nr: 1			
2005-03-11 11:13 Kvitto NR: 000002/1 Servit NR: 1			
23	LUNCH BUFFE	1	68,00
1	KONTANT	1	68,00
	MOMS 25%	1	13,60

Electronic Journal (before manipulation)

1. Item number 21 is a Lunch B
2. It cost 65,00 kroner
3. The receipt is number 2/1

AB
CREDIT

Förs.per familj
2005-03-11 till 2005-03-11

Namn	SUM
Unknown family	693,00 kr
AVHÄMTNING	1 701,01 kr
DRINK	340,00 kr
DRYCK	1 026,00 kr
MAT	19 981,00 kr
SPRIT	669,00 kr
STARKÖL	13 492,00 kr
VIN	3 144,00 kr
TOTAL	41 046,01 kr
Out of SALES :	0,00 kr
Rabatt :	-209,70 kr

Sales Report (before manipulation)

We need this for comparison later

T00120050311.TIC - Anteckningar					
Arkiv	Redigera	Format	Visa	Hjälp	
A	21	1	6500H	2	
R	1	1	6500I		
X	1	1	1300P		
C	0	2	OG		
D	0	1	1	1L	
-1103051113000002/1				3	650007670006001H
F					
A	23	1	6800G		
R	1	1	6800D		
X	1	1	1360B		
C	0	2	OG		
D	0	1	1	1L	
-1103051120000003/1					680007676006001N
E					

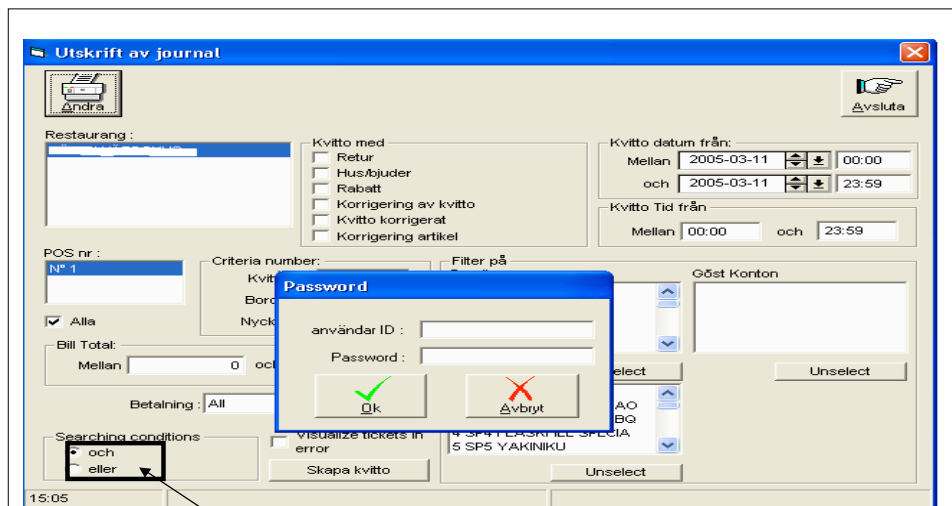
Sales receipt (before manipulation)

These are in the ".TIC" files (for "tickets"). Notice:

- 1.Item number 21
- 2.Sales price of 65,00 kroner
- 3.Ticket number (receipt number) 2/1

To manipulate the data you insert
the zapper (silver memory stick)

There is a new version of the
CMDCAR.DLL program on the zapper



Double-Click on the secret module

It is not all that apparent what you need to do here, but by double clicking in the box in the lower left, entering an ID and a password, you will get to the next screen – the Electronic Journal (which can be adjusted).

Elektronisk journal

Change password

Restaurant: POS Nb: N° 1 Waiters: 2 CAFE 2, 3 SERV 3, 4 SERV 4, 5 SERV 5

Date: 2005-03-11 au 2005-03-11

Bill Total: Upper to 0 Receipt time: Entre 00:00 och 23:59

☒ All ☐ Unselect

List of tickets paid in cash

Date	Time	Nb ticket	POS	Wait	Type	Amount	Replaced by	Total removed
05-03-11	11:13	000002/1	1	1	Direkt	65,00 kr		
05-03-11	11:20	000003/1	1	1	Direkt	68,00 kr		
05-03-11	11:30	000004/1	1	1	Direkt	60,00 kr		
05-03-11	11:35	000005/1	1	1	Direkt	136,00 kr		
05-03-11	11:44	000006/1	1	1	Direkt	76,00 kr		
05-03-11	11:46	000007/1	1	1	Direkt	136,00 kr		
05-03-11	11:48	010001/2	1	1	Bord	45,00 kr		
05-03-11	11:49	000008/1	1	1	Direkt	68,00 kr		
05-03-11	11:54	000010/1	1	1	Direkt	68,00 kr		
05-03-11	11:55	000011/1	1	1	Direkt	68,00 kr		
05-03-11	11:55	000012/1	1	1	Direkt	130,00 kr		
05-03-11	11:55	000013/1	1	1	Direkt	35,00 kr		
05-03-11	11:56	000014/1	1	1	Direkt	68,00 kr		
05-03-11	11:56	000015/1	1	1	Direkt	65,00 kr		
05-03-11	11:57	000016/1	1	1	Direkt	73,00 kr		
05-03-11	11:58	000017/1	1	1	Direkt	136,00 kr		
05-03-11	11:59	000018/1	1	1	Direkt	65,00 kr		
05-03-11	12:04	000019/1	1	1	Direkt	65,00 kr		

Select the tickets to replace in the list

Manual selecting of replacement tickets

Total Sales: 40 836,31 kr Amount to remove: Threshold amount: 100

- Total P Total: 0,00 kr

Total Gross: 40 836,31 kr

Buttons: Analyse, Replace auto, Validate

"Manipulate-able" Electronic Journal

Notice that we can either

- (1) select a ticket to adjust, or
- (2) auto-replace

So, assume we take the selection of a ticket approach ... (1),
When we select the first item (ticket number 2/1) we then get ...

Elektronisk journal

Change password

Restaurant: POS Nb: N° 1 Waiters: 2 CAFE 2, 3 SERV 3, 4 SERV 4, 5 SERV 5

Date: 2005-03-11 au 2005-03-11

Bill Total: Upper to 0 Receipt time: Entre 00:00 och 23:59

☒ All ☐ Unselect

List of tickets paid in cash

Article List	Amount
104 D	60,00 kr
233 ESPRESSO	25,00 kr
534 FAUSTINO	238,00 kr
330 FLASKÖL 33CL	35,00 kr
334 FLASKÖL 50CL	45,00 kr
341 FOLKÖL 33CL	25,00 kr
210 FYRA SMÅ RÄTTER	105,00 kr

Price Level: Normal

Replacement tickets

Tickets	Amount
334 FLASKÖL 50CL	1 45,00 kr

Total: 45,00 kr

Buttons: Add, move, Erase Ticket, Ticket with commission, Add

List of replacement tickets

Article	Amount
334 FLASKÖL 50CL	1 45,00 kr
Cash	45,00 kr
MOSS 25%	9,00 kr

Total Sales: 40 836,31 kr Amount to remove: Threshold amount: 100

- Total P Total: 0,00 kr

Total Gross: 40 836,31 kr

Buttons: Analyse, Replace auto, Validate

Replace the Lunch Buffet (65,00) – with a beer (45,00)

Notice the price reduction (we could have gone lower) – Notice the tax reduction
The Swedish VAT is at 25%

Elektronisk journal

Change password

End

Change

Restaurant: N: 1

POS Nb: N: 1

Waiters: 2 CAFE 2, 3 SERV 3, 4 SERV 4, 5 SERV 5

Date: 2005-03-11 au 2005-03-11

Bill Total: 0

Receipt time: Entre 00:00 och 23:59

List of tickets paid in cash

Date	Time	Nb ticket	POS	Wait	Type	Amount	Replaced by	Total removed
05-03-11	11:13	000002/1	1	1	Direkt	65,00 kr	Nr1	45,00 kr
05-03-11	11:20	000004/1	1	1	Direkt	68,00 kr		
05-03-11	11:30	000004/1	1	1	Direkt	68,00 kr		
05-03-11	11:35	000005/1	1	1	Direkt	136,00 kr		
05-03-11	11:44	000006/1	1	1	Direkt	76,00 kr		
05-03-11	11:46	000007/1	1	1	Direkt	136,00 kr		
05-03-11	11:48	010001/2	1	1	Bord	45,00 kr		
05-03-11	11:49	000008/1	1	1	Direkt	68,00 kr		
05-03-11	11:54	000010/1	1	1	Direkt	68,00 kr		
05-03-11	11:55	000011/1	1	1	Direkt	68,00 kr		
05-03-11	11:55	000012/1	1	1	Direkt	130,00 kr		
05-03-11	11:55	000013/1	1	1	Direkt	35,00 kr		
05-03-11	11:56	000014/1	1	1	Direkt	68,00 kr		
05-03-11	11:56	000015/1	1	1	Direkt	65,00 kr		
05-03-11	11:57	000016/1	1	1	Direkt	75,00 kr		
05-03-11	11:58	000017/1	1	1	Direkt	136,00 kr		
05-03-11	11:59	000018/1	1	1	Direkt	65,00 kr		
05-03-11	12:04	000019/1	1	1	Direkt	65,00 kr		

Replaced tickets

Articles à exclure: 0

Total Sales: 40 836,31 kr

Amount to remove: 20,00 kr

Threshold amount: 100

Total P Total: 20,00 kr

Total Gross: 40 816,31 kr

Analyse

Replace auto

Validate

Manipulated Electronic Journal (pro-forma)

Here is what we have done so far – is this enough manipulation?

Ticket 2/1 has been changed from 65,00 to 45,00 with a reduction of 20,00 on this ticket

There is a running total kept (in case you want to remove more)

Nr	Namn	Ant	SUM
21	LUNCH B	1	65,00
1	KONTANT	1	65,00
	MOMS 25%	1	13,00
TOTAL KVITTO			65,00
Direkt			
Bord NR:0			
2005-03-11 11:13			
Kvitto NR:000002/1			
Nyk nr:1			
Servit NR:1			

Original

Nr	Namn	Ant	SUM
334	FLASKÖL 50CL	1	45,00
1	KONTANT	1	45,00
	MOMS 25%	1	9,00
TOTAL KVITTO			45,00
Direkt			
Bord NR:0			
2005-03-11 11:13			
Kvitto NR:000002/1			
Nyk nr:1			
Servit NR:1			

Manipulated

Comparison: Original & Manipulated Electronic Journal

Notice the reduction in gross sales & the reduction in tax.

If this record is tied into inventory control, adjustments in related purchases will be necessary [some zappers will do this for you] because you may have just "sold" more beer than you ordered

T00120050311.TIC - Anteckningar

Arkiv Redigera Format Visa Hjälp

Manipulated

```

A 334 1 4500?
R 1 1 4500?
X 1 1 900?
C 0 2 0G
D 0 1 1 1 1L
-1103051113000002/1 45000767000600.H
F
A 23 1 6800G
R 1 1 6800D
X 1 1 1360B
C 0 2 0G
D 0 1 1 1 1L
-1103051120000003/1 68000767600600.N

```

Original

```

A 21 1 6500H
R 1 1 6500I
X 1 1 1300P
C 0 2 0G
D 0 1 1 1 1L
-1103051113000002/1 650007670006001H

```

Comparison of the TIC-files – Manipulated & Original

Notice the “?” in the Manipulated version in contrast with the letters “H”, “I” & “P” in the original version. This one of the tell-tale signs of manipulation in this particular program. It may indicate that the system has not been correctly updated since the manipulation procedure.

Solutions

- | | | |
|---|--------------------------------------|--------------|
| <ul style="list-style-type: none"> • 1. Certification of ECRs – Greece • 2. Certification of receipts – Canada • 3. Encryption of ECR/POS system functionality “smart cards” – Germany | <div style="font-size: 3em;">}</div> | Third Paper |
| <ul style="list-style-type: none"> • 4. Third-party certification regimes – Extension of SSUTA | <div style="font-size: 3em;">}</div> | Fourth Paper |

Thanks

- Richard T. Ainsworth
- Director, Government Affairs (International)
at ADPTaxware
 - Richard_Ainsworth@adp.com
- Adjunct Professor, Boston University School
of Law – Graduate Tax Program
 - Vatprof@bu.edu