CHAPTER 4: RESEARCH RESULTS

4.1 INTRODUCTION

The research results are presented after conducting reliability test where Cronbach's Alpha that suggests strong internal consistency reliability for the scale with this sample is calculated. The strength of the relationships between the var iables (PU, PEAU and ADPI) was explored using Pearson correlation after taking into account all the assumptions (non-linear relationship, outliers, normality and homoscedasticity among others). The predictive ability of the set of independent variables, all the risk facets on adoption intention was measured using multiple regression. Lastly t-test and ANOVA were used to test the effect of some of the demographic profiles collected on the variables.

4.2 DEMOGRAPHIC PROFILE

Table 4.1 summarizes some of the demographics of the respondents. The descriptive statistics shows a fairly young and well educated population with more than 75 percent of the respondents is below forty years old while 69.8 percent of them have at least a degree qualification. In terms of gender, the population is divided almost equally between male and female respondents.

The respondents also exhibit high level of computer literacy where nearly 90 percent of them have at least four years of experience using the Internet. Meanwhile, more than 70 percent of this sample of taxpayers uses the internet every day and 78.7 percent of the respondents have excess to the internet connection via dial up or broadband

This group of respondents generally depicts the real ethnic proportion of Malaysia with ratio of approximately 65% Malay, 20% Chinese and 15% Indian and Others. The 2000 Census figures show that the Bumiputera community made up 61.2 percent of the population, Chinese 25.1 percent and Indians and Other Malaysians 13.7 percent.

An overwhelming number of the taxpayers were those who earn employment income (91.1%). Since three quarter of the questionnaires were distributed during the first four months of IRB's Taxpayers Month (January 2009 until April 2009) at IRB' offices in Federal Territory and Selangor, only 5% of the respondents were earning business income.

Table 4.1
Demographic attributes of the respondents

Demographics		Frequency	Percent (%)
Gender	Male	119	46.1
	Female	132	51.2
Age	Less than 30 years	75	29.1
	30-39 years	124	48.1
	40-55 years	45	17.4
	56-65 years	7	2.8
	Above 66 years	0	0.0
Ethnic	Malay	171	68.1
	Chinese	50	19.9
	Indian	26	10.4
	Others	4	1.6
Education	Primary School	1	0.4
	Secondary School	32	12.4
	Diploma	35	13.6
	Undergraduate	152	58.9
	Masters	28	10.9
	PhD	0	0
Years on Internet	None	11	4.3
	1-3 years	17	6.6
	4-6 years	25	9.7
	7-9 years	45	17.4
	10 years and above	153	59.3
Computer and Network Facilities	Have no computer	14	5.4
	Have computer(s) but no Internet Connection	34	13.2
	Dial Up	18	7.0
	Broadband	185	71.7
Frequency of Internet Use	Never	3	1.2
	Less than one time per month	21	8.1
	Once a month	6	2.3
	Once a week	36	14.0
	Every day	185	71.7
Type of Taxpayer	Employment (SG)	235	91.1
	Business (OG)	13	5.0

4.3 ANALYSIS OF MEASURES

4.3.1 Reliability Test

Ideally the Cronbach alpha coefficient of a scale should be above 0.7 for it to be acceptable (Pallant, 2007). It is of evidence that the Cronbach alpha value for the eight factors in this study ranged from 0.75 to 0.98. Cronbach alpha scores shown in Table 4.2 indicated that each risk facet exhibited strong internal reliability.

Table 4.2
Reliability Statistics

Variables	Alpha (Current Study)	Alpha [Featherman & Pavlou(2003)]
Time Risk	0.891	0.796
Psychological Risk	0.856	0.891
Privacy Risk	0.905	0.857
Performance Risk	0.870	0.797
Overall Risk	0.920	0.850
Ease of Use	0.791	0.867
Usefulness	0.752	0.901
Adoption Intention	0.977	0.968

This study provides reliable instruments where five out of eight variables recorded scores higher than that of Featherman and Pavlou (2003) as shown in Table 4.2. Adoption intention recorded Cronbach alpha of 0.98 as compared to

0.97 recorded by Featherman and Pavlou (2003); privacy risk, 0.91 (0.86); and overall risk = 0.92 (0.85).

4.4 TESTING OF HYPOTHESES

4.4.1 Results and Analysis on Research Question 1 and H_1

The 14 items of the perceived risk facets (performance, privacy, psychological and time) were subjected to principal components analysis (PCA) using SPSS 16.0. Components were extracted by way of varimax rotation. Prior to performing PCA, the suitability of the data for factor analysis was assessed. Factor analysis attempts to identify a small set of factors that represent the underlying relationships among a group of related variables (Pallant 2007). Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value is 0.935 (more than 0.6) and the Bartlett's Test of Sphericity value is significant, therefore factor analysis is appropriate.

As shown in the Correlation Matrix table (Appendix 2), all the correlation coefficients are above 0.3, which again proves that factor analysis is appropriate. Table 4.3 reports the factor analysis output. PCA revealed 2 components recorded eigenvalues above 1 (8.082 and 1.496). These 2 components explain a total of 68.411 per cent of the variance where factor one and two with

eigenvalues above 1 explains 57.73 percent and 10.68 percent of the variance respectively. It was decided to retain two components for further analysis. In the Rotated Component Matrix (Appendix 2), the items loading on the two factors with eight items loading above 0.3 on Component 1 and six items loading above 0.3 on Component 2. Since there are more than 3 items loading on each component, a two-factor solution is again proven to be appropriate.

Table 4.3
Statistics for Items of Perceived Risk including Factor Loading

Items: Perceived Risk	Factor Loading	
	F1	F2
The chances of you losing control over the privacy of your information when using e-filing are very high (PRVR1)	0.841	
The security systems built into e-filing are not strong enough to protect my sensitive information (PFMR2)	0.803	
Internet hackers (criminals) might take control of my personal information if I used e-filing (PRVR3)	0.796	
My signing up for and adopting of e-filing would lead to a loss of privacy for me because my personal information would be used without my knowledge (PRVR2)	0.772	
The likelihood that there will be something wrong with the performance of e-filing system or that it will not work properly is very high (PFMR3)	0.721	
E-filing servers may not perform well and process transactions incorrectly (PFMR5)	0.716	
The e-filing system might not perform well and create problems (PFMR1)	0.666	
Considering the expected level of service performance of e-filing system, for you to sign up for and adopt it would	0.624	

be very risky (PFMR4)		
My signing up for and adoption of e-filing services would lead to a loss of convenience of me because I would have to waste a lot of time fixing errors (TMR2)		0.825
Considering the investment of my time involved to switch to e-filing makes them very risky (TMR3)		0.824
The possible time loss from having to set-up and learn how to use e-filing makes them very risky (TMR4)		0.811
The adoption of the e-filing system would lead to a psychological loss for me because it would not fit in well with my self-image or self-concept (PYCR2)		0.772
If you had begun to adopt e-filing, the chances that you will lose time due to having to switch to a different filing method are very high (TMR1)		0.762
The e-filing will not fit in well with my self-image or self-concept (PYCR1)		0.689
Eigenvalues	8.082	1.496
% of Variance	57.727	10.684
Cumulative %	57.727	68.411
Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.935		
Bartlett's Test of Sphericity (Approx. Chi-Square = 3106.044, p< 0.000)		
Notes: Factor 1 = Performance Risk; Factor 2 = Psychosocial Risk Only factor Loading greater than 0.4 are displayed		

These findings supported the Cunningham (1967) proposition that perceived risk has two main categories, performance related and psychosocial. E-filing system context does not cause any direct financial or physical threat to human life, therefore measures of financial and safety risks were not included in this research. Referring to Table 4.3, Factor 1 comprises of 8 items with factor

loadings ranging from 0.624 to 0.841. Factor 2 meanwhile comprises of 6 items with factor loadings ranging from 0.689 to 0.825. Some items have dual loading greater than 0.3 on more than one factor such as PRVR2, PFMR5, PFMR1, PFMR4, TMR2, TMR3, PYCR2 and PYCR 1 (Appendix 2). The main loadings for Component 1 are PRVR 1, PFMR 2 and PRVR 3 while TMR 2, TMR 3 and TMR 4 are the main loadings for Component 2. The two main categories (performance and psychosocial) posited by Cunningham (1967) is again supported. Hypothesis 1 that postulates that *Perceived risk comprises the facets of (1) performance, (2) psychological, (3) privacy and (4) time* is supported.

However, Cunningham (1967) divided performance into three types – (i) economic, ii) temporal, (iii) effort; and divided psychosocial into two types – (i) psychological and (ii) social. As depicted in Table 4.3, Factor 1 comprises of items from privacy risk and performance risk while Factor 2 comprises of both items from psychological and time risks. This may due to the fact that psychological risk has only less than appropriate items (two) to explain psychosocial aspect of perceived risk. Time risk items (Item 2 and 3) even recorded dual loading greater than 0.3 in both Factor 1 and 2. This research also supported his (Cunningham, 1967) theories that posited that all risk facets pivot from performance risk and that perceived risk consists of several dimensions including performance, time, safety (privacy) and psychological.

4.4.2 Result and Analysis on Research Question 1 and H_2

The relationship between perceived risk of electronic tax filing and taxpayers' adoption intention of the said system was investigated using standard multiple regression. This statistical tool was used to access the ability of all the risk facets (performance risk, privacy risk, time risk, psychological risk and overall risk), to predict the adoption intention of taxpayers. Total variance in adoption intention of taxpayers explained by the model as a whole was 2.3%, F (5,246) = 2.180 and does not reach statistical significance, p > 0.01. No support has been found for *H_2: Higher levels of e-filing perceived risk will be negatively related to adoption intention.*

Table 4.4
Multiple Regression – Risk Facets and ADPI

R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
0.206	0.042	0.023	2.64301	2.180	0.057

* Predictors: (Constant) OVR, PYCR, PRVR, PFMR. TMR
** Dependent Variable: ADPI

Contrary to the research prediction PR may not be an important factor that directly affects Malaysian taxpayers' choice of tax filling method. This result contrast with that of Featherman and Pavlou (2003) and Pavlou (2003) that measure the influence of PR on e-commerce adoption model as well as to Hung

et al. (2006) and Horst et al. (2007) that covers the e-government adoption model.

4.4.3 Analysis on Research Question 2 that has an effect on H_3 and H_4

The relationship between perceived usefulness of electronic tax filing and taxpayers' adoption intention of the said system was investigated using Pearson product-moment correlation coefficient and was found to be statistically insignificant, r = 0.034, n = 254, p > 0.01 (Table 4.5). *H_3: Higher levels of e-filing perceived usefulness will be positively related to higher levels of adoption intention* is not supported.

Table 4.5
Correlation Matrix – Adoption Intention, Perceived Usefulness and Perceived Ease of Use

	ADPI	**PU**	**PEOU**
ADPI	1		
PU	0.034	1	
PEOU	0.146*	.742**	1

* Correlation is significant at the 0.05 level
**Correlation is significant at the 0.01 level

In order to determine the relationship between perceived ease of use of this particular IRB's system and adoption intention, Pearson product-moment correlation coefficient was used. There is a positive relationship between PEOU

and taxpayers' adoption intention towards e-filing, $r = 0.146$, $n = 252$, $p < 0.05$ (Table 4.5). These two variables that correlate $r = 0.146$, share 2.13% of their variance with high levels of ease of use associated with high levels of adoption intention. *H_4: Higher levels of e-filing perceived ease of use will be positively related to higher levels of adoption intention* is strongly supported. This suggests that when taxpayers perceived e-filing to be free of effort and easy to use, their intention to adopt e-filing system will increase.

TAM theorizes that an individual's intention towards using a system is jointly determined by PU and PEOU. The effects of external variables (e.g., system design characteristics) on adoption intention (AI) are mediated by these beliefs. According the Davis et al.(1989) and Venkatesh and Davis (2000), PEOU also has a direct effect on PU and this research seemed to support that fact. The relationship between perceived usefulness of electronic tax filing and taxpayers' perceived ease of use the said system adoption intention of the said system was investigated using Pearson product-moment correlation coefficient and was found to be statistically significant, $r = 0.742$, $n = 254$, $p < 0.01$ (Table 4.5). There is a positive relationship between taxpayers' PEOU and PU and these two variables that correlate $r = 0.742$, share 55.06% of their variance with high levels of ease of use associated with high levels of perceived usefulness.

Table 4.6
Multiple Regression – PU, PEOU, PR and ADPI

R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
0.292	0.085	0.059	2.59364	3.253	0.003

* Predictors: (Constant) PU, PEOU OVR, PYCR, PRVR, PFMR. TMR
** Dependent Variable: ADPI

Standard multiple regression was use to access the ability of all the risk facets (performance risk, privacy risk, time risk, psychological risk and overall risk), perceived ease of use and perceived usefulness to predict the adoption intention of taxpayers. Total variance in adoption intention of taxpayers explained by the model as a whole was 8.5%, F (7,244) = 3.253 and reaches statistical significance, $p < 0.01$. Largest Beta coefficients is 0.31, which is for perceived ease of use followed by psychological risk (beta = - 0.251), time risk (beta = - 0.129), perceived usefulness (Beta = 0.121), privacy risk (Beta = 0.098), overall risk (Beta = 0.088) and lastly performance risk (beta = 0.049), This means that perceived ease of use make the strongest unique contribution to explaining the dependent variable, adoption intention, when the variance explained by all other variables are controlled for. The betas for the rest of the variables made less of a contribution.

Only perceived ease of use and psychological risk are statistically significant, $p < 0.01$ and makes the strongest unique contribution (beta coefficients are 0.31

and 0.251 respectively) to explaining the perceived usefulness of e-filing system. The other variables are not statistically significant, $p > 0.01$.

In the semi partial correlation coefficients, total variance in the dependent variable (adoption attention) is uniquely explained for perceived ease of use is 3.9% while psychological risk uniquely explained 0.48% the total variance in the dependent variable.

4.5 DEMOGRAGRAPHIC COMPARISON

4.5.1 Analysis on Research Question 3

Independent-samples t-tests were conducted to compare the adoption intention, PU, PEOU and PR scores for males and female. While the assumption of equal variances has not been violated, there were no significant differences in scores for males and females for adoption intention, PU or PEOU. However there is a significant difference in the mean score on perceived risk for male and female $t(244) = -2.719$, $p = 0.007$ (Appendix 2).

Effect size statistics provide an indication of the strength of association or the magnitude of the differences between groups. In other words it explains the amount of the total variance in the dependent variable that is predictable from

knowledge of the levels of the independent variable (Pallant, 2007). The most common effect size statistics used being eta squared and Cohen's d. was calculated. Eta squared can ranged from 0 to 1 and represents the proportion of variance in the dependent variable that is explained by the independent variable (Pallant (2007).

The guidelines (proposed by Cohen 1988) for interpreting this value are: 0.01 = small effect; 0.06 = medium effect and 0.14 = large effect. The magnitude of difference in the means (mean difference = -0.48, 95% CI: -0.82 to -0.14) was moderate (eta squared = 0.06).

One way between groups analysis of variance (ANOVA) was conducted to explore the impact of age on adoption intention of e-filing system as well as PU, PEOU and PR associated with e-filing. Even though the assumption of homogeneity of variance has not been violated, there are no significant differences ($p > 0.05$) among the mean scores of the variables for all five age groups.

ANOVA was then conducted to explore the impact of ethnicity on adoption intention of e-filing system as well as PU, PEOU and PR associated with e-filing. While the assumption of homogeneity of variance has not been violated, there are no significant differences ($p > 0.05$) for adoption intention, PU and PEOU for all ethnic groups. On the other hand there is an impact of different ethnic group

on perceived risk. There was a statistically significant difference at the $p < 0.05$ for the four groups $F(3,242) = 2.947$. Despite reaching statistical significance, the actual difference in mean scores between the groups (on perceived risk) was quite small. In order to determine the effect size, eta squared was calculated. The effect size was 0.03. Pos-hoc comparisons using the Tukey HSD test indicated that the mean score for the groups did not differ significantly from each other.

ANOVA was again conducted to explore the impact of taxpayers' level of education on adoption intention of e-filing system as well as PU, PEOU and PR. The assumption of homogeneity of variance has not been violated for PU, PEOU and PR; there were statistically significant differences at the $p < 0.05$ only for PU and PEOU ($F(3,241) = 5.123$, $p = 0.002$ and $F(3,240) = 8.459$, $p = 0.00$ respectively).

The actual differences in mean scores between the groups for both PU and PEOU have medium effect size (eta squared were 0.06 and 0.096 respectively). Pos-hoc comparisons using the Tukey HSD test indicated that in the case of PU, the mean score for Undergraduates ($M = 2.92$, $SD = 1.34$) was significantly different from respondents with diploma ($M = 3.62$, $SD = 1.18$) and secondary school ($M = 3.68$, $SD = 1.41$) education level. The other groups did not differ significantly from each other. As for PEOU, the mean score for Undergraduates ($M = 2.97$, $SD = 1.21$) was significantly different from respondents with diploma

(M = 3.68, SD = 1.08) and secondary school (M = 3.96, SD = 1.14) education level. The other groups did not differ significantly from each other.

The impact of respondents' level of internet experience on adoption intention of e-filing system as well as PU, PEOU and PR were explored again using ANOVA. The assumption of homogeneity of variance has not been violated for PU, PEOU and PR; there were statistically significant differences at the $p < 0.05$ only for PEOU ($F(4,243) = 8.645$, $p = 0.00$).

The actual difference in mean scores between the groups for PEOU has medium effect size (eta squared = 0.125). Pos-hoc comparisons using the Tukey HSD test indicated that the mean score for zero (0) year in internet experience (M = 4.88, SD = 1.49) was significantly different from all the other groups of years in internet experience; 1-3 years (M = 3.15, SD = 0.92), 4-6 years (M = 3.57, SD = 0.87), 7-9 years (M = 3.42, SD = 1.12) and more than 10 years of internet experience (M = 2.97, SD = 1.17).

ANOVA was then used to explore the impact of frequency of internet use on adoption intention of e-filing system as well as PU, PEOU and PR associated with e-filing. While the assumption of homogeneity of variance has not been violated, there are no significant differences ($p > 0.05$) for adoption intention and PR for all the groups. There were however statistically significant differences at the $p < 0.05$ for PU ($F(4,244) = 4.176$, $p = 0.003$) and PEOU ($F(4,243) = 5.991$, $p = 0.00$). The actual differences in mean scores between the groups for both PU

and PEOU have medium effect size (eta squared were 0.06 and 0.09 respectively). Pos-hoc comparisons using the Tukey HSD test of PEOU indicated that the mean score for internet use of less than one time per month (M = 4.30, SD = 1.23) was significantly different from respondents that use internet; once a month (M = 2.67, SD = 1.16), once a week (M = 3.398, SD = 1.13) and everyday (M = 3.07, SD = 1.15). Group where the respondents never use the internet (M = 2.89, SD = 1.50) did not differ significantly from the other groups. Meanwhile, for PU, Pos-hoc comparisons using the Tukey HSD test indicated that the mean score for internet use of less than one time per month (M = 4.12, SD = 1.20) was significantly different from respondents that use internet everyday (M = 2.97, SD = 1.27).

Independent-samples t-tests were again conducted to compare the adoption intention, PU, PEOU and PR scores for respondents with the venues that the questionnaires were being distributed (at IRB offices or corporations in Federal Territory and Selangor). While the assumption of equal variances has not been violated for variable PEOU, the same cannot be said to the other three variables. There were no significant differences in scores for questionnaires distributed at IRB branches and those at randomly selected corporations for adoption intention, PU or PEOU. However there is a significant difference in the mean score on perceived risk for IRB branches (M = 3.42, SD = 1.47) corporations (M = 3.98, SD = 1.22), t (241.73) = -3.27, p = 0.001. The magnitude of difference in the

means (mean difference = -0.56, 95% CI: -0.89 to -0.22) was small (eta squared = 0.04).

4.6 SUMMARY OF RESEARCH RESULTS

H_1 is supported with all risk facets' items have factor loading of more than 0.6 in one of the factor in the two-factor solution. Perceived risk comprises of all these facets of (1) performance, (2) psychological, (3) privacy and (4) time. The risk itmes were divided into two groups (performance and psychosocial) as predicted by Cunningham (1976).

H_2 is not supported where perceived risk is found not to have a relationship with adoption intention of e-filing. The same can be said to the effect of system perceived usefulness (H_3) on taxpayers' adoption intention where the hypothesis that higher levels of e-filing perceived usefulness will be positively related to higher levels of adoption intention is not supported. Perceived ease of use meanwhile is seen as a more important factor (strong support on H_4) that influences taxpayers' adoption intention of e-filing system. The fact that e-fling is perceived to be free of effort has a positive influence taxpayers' willingness to adoption the electronic tax filing.

Table 4.7
Summary of Results (Hypotheses)

	Hypotheses	Result
H1	Perceived risk comprises the facets of (1) performance, (2) psychological, (3) privacy and (4) time	**Supported**
H2	Higher levels of e-filing perceived risk will be negatively related to adoption intention.	**Not Supported**
H3	Higher levels of e-filing perceived usefulness will be positively related to higher levels of adoption intention.	**Not Supported**
H4	Higher levels of e-filing perceived ease of use will be positively related to higher levels of adoption intention.	**Supported**

In the analysis of effect of demographic profile on the variables, Independent-samples t-tests were conducted to compare the adoption intention, PU, PEOU and PR scores of male and female. However there is a significant difference in the mean score only on perceived risk for gender. The magnitude of difference in the means is moderate.

Table 4.8
Summary of Results (Demographics)

Demographic	Result	Effect Size
Gender	**Perceived Risk**	**Moderate**
Age	**None**	
Ethnicity	**Perceived Risk**	**Small**
Education	**Perceived Usefulness & Perceived Ease of Use** Undergraduates was significantly from different	**Medium**

	diploma & secondary school	
Internet experience	**Perceived Ease of Use** Respondents with no experience at all differ from those with at least 1 year of experience	**Medium**
Frequency of internet use	**Perceived Usefulness** < 1 time per month significantly different from everyday **Perceived Ease of Use** < 1 time/month significantly different from at least 1 time/month	**Medium**
Venue where questionnaires were distributed	**Perceived Risk** Respondents from IRB branches different from those from corporations	**Small**

Using ANOVA meanwhile shows age groups did not record any impact on all variables, adoption intention of e-filing system as well as PU, PEOU and PR associated with e-filing. The same statistical test, ANOVA was then conducted to explore the impact of ethnicity on all the same variables. It is shown that ethnicity has an impact on perceived risk taxpayers associated with e-filing service.

The level respondents' education and frequency of Internet use are found to have an impact on both their perception of e-filing ease of use and perception of usefulness. The magnitudes of difference in the means of both variables are moderate. In the case of taxpayers' experience in using the internet, taxpayers with no experience at all differ from those with at least 1 year of internet experience. The venue in which the questionnaires were distributed also seemed to have an impact on the perception of risk.