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An Empirical Study on the Effects of Income Tax on Capital Gains Derived by Individuals from Securities Transactions

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Abstract

The capital gains tax on securities transactions is a levy on investors' net profits from the sale of securities. The issue of income tax on capital gains derived by individuals from securities transactions is a divisive one. One the one side, some argue that taxing income from capital reduces savings and investment incentives, and dampens the nation's long-term prospects for increased productivity and economic growth. However, on the other side, critics argue that these productivity gains or economic growth effects are exaggerated, and that it is fundamentally unfair to give preferential tax treatment to those earning capital incomes, while those who earn primarily wage income are forced to carry the full tax burden.

In Taiwan, there has been a long debate around income tax on the capital gains derived from securities transactions. One reason for this is because there has been no income tax on the capital gains obtained by individuals from securities transactions in Taiwan, except in 1974 and 1989. In these two years there was a temporary income tax on such gains. Moreover, from 2013 onwards, the capital gains derived from transactions in marketable securities were also subject to income tax, although this policy then ended on January 1, 2016. This history shows that the issue of income tax on these capital gains remains an issue in Taiwan, with the outcome having significant effects on individual taxpayers, the budget deficit and the economy's long-term growth prospects. In this study, we thus attempt to investigate the effects of an income tax on the capital gains derived by individuals from securities transactions in the Taiwanese stock market.

Keywords: capital gain, tax, securities transaction, stock price

I. Introduction

Haugen and Wichern (1973) stated that economists have long been aware of the destabilizing property of a capital gains tax, commonly referred to as the locked-in effect. Such a tax acts to increase the supply of securities in a falling market and reduce the supply of securities in a rising one, increasing the magnitude of the fluctuation in both directions. The traditional view of the effect of capital gains taxation on the stock market assumes that it has a significant influence on investors' market behavior, because such a tax give investors an incentive to realize capital losses and to defer the realization of capital gains (Dyl, 1977). The effect of the capital gains tax on the sale of capital assets and the realization of gains on these assets have been a matter of substantial academic and political debate (Lindsey, 1987).

Income tax on the capital gains derived by individuals from securities transactions has also been a major point of contention in Taiwan. Some proponents argue that it is unfair to give preferential tax treatment to those earning capital incomes, while those who earn primarily wage income are forced to carry a full tax burden. However, some critics counter that taxing capital gains effectively increases the cost of funds to firms, because it reduces the after-tax return to stockholders. In other words, if potential stockholders knew that they would not have to pay taxes on the appreciation of their assets, they would be willing to pay a higher price for new issues of stock. If firms could raise larger amounts of funds selling their own shares, they would not have to resort to other, possibly costlier, methods of raising funds, such as selling bonds or taking out bank loans. It follows that if there is a reduction in the capital gains tax rate, the resulting decrease in the cost of capital should spur investment and increase the long-term growth rate of the economy.

However, a reduction in the capital gains tax rate may only have small effects on potential investors' incentives to buy stocks, and, consequently, on the overall cost of capital. In addition, the changes in the overall cost of capital may only have small effects on aggregate investment, and thus attempting to generate more investment through such a tax policy might be ineffective. However, the arguments for and against the preferential tax treatment of capital gains income merit more examination.

Since 1963 the Taiwanese government has often tried to impose income tax on the capital gains derived by individuals from securities transactions, but each time it has eventually abandoned such plans, in the early years because it was very difficult to calculate the taxes due with the limited resources and technology that were available. For example, the Taiwanese government taxed capital gains income in 1973 to curb speculation in the stock market. However, the global stock market took a downturn in 1975, and Taiwanese stock market was also affected, and thus this tax was ended. Based on the fair taxation principle, the government then re-imposed an income tax on the capital gains derived by individuals from securities transactions in 1989. However, because of prevalence of dummy accounts during this period, the calculation of individual income became very difficult, and thus this tax only lasted for one year. From 2013 onwards, the capital gains derived from transactions in marketable securities were also subject to income tax, but then this tax was also ended on January 1, 2016.

As fair taxation and fiscal soundness are conducive to economic development, the income taxation policy on the capital gains derived by individuals from securities transactions has repeatedly been revised in Taiwan, as outlined above. Therefore, this study attempts to investigate the effects of such a tax on capital gains in the Taiwanese stock market.

Specifically, this work examines the extent to which return on investment, turnover in value and trading volume change in response to the declaration date of a capital gains tax in the short or long term.

II. Literature Review

The Effects of Capital Gains Tax on Stock Prices

As for stock price volatility, some scholars believe that imposing a capital gains tax causes an increase in this, and results in more unstable securities prices. However, others believe that the impact of a capital gains tax on the stock price is not very significant.

For example, Somers (1948) stated that one of the reasons for economic instability is the use of a capital gains tax, resulting in a blocking effect that affects the price of the securities. However, there is only a little empirical evidence in the literature to support the idea that imposing a capital gains tax increases stock volatility.

Jang (1994) pointed out that the capital gains tax rate impacts the stock market. The changes in such tax rate not only affect investors' investment decisions, but also the evaluation of securities. The United States abolished the long-term preferential capital gains tax rate in 1986, which is the same as increasing the capital gains tax rate. This reduced the value of stocks with a low dividend and increased that of stocks with a high dividend, indirectly impacting stock market returns. Lang and Shackelford (2000) applied the asset valuation model and regression analysis to investigate the impact of the reduction of capital gains tax in the United States in 1997. They found that the expected reduction in the capital gains tax rate increased the stock market return and attracted investors to buy stocks. This resulted in rising stock prices and increasing the total market value.

Mao and Huang (2000) applied a time series analysis to investigate the effects of capital gains tax and transaction tax on stock prices in Taiwan from 1982 to 2001. Their empirical results showed that the capital gains tax and securities transaction tax only affected stock prices slightly and indirectly. They concluded that the effects are not good if the government uses the tax policy to intervene in the stock market, and that adjusting the tax rate has no direct influence on the market. Poterba and Weisbenner (2001) stated that changes in the capital gains tax rules for individual investors do not affect the incentives for "window dressing" that institutional investors have, but they can impact the incentives for year-end tax-induced trading by individuals.

Overall, scholars use different methods of research to examine this issue and report different results. For example, Jang (1994) and Lang and Shackelford (2000) found that a reduction in the capital gains tax would change the value of stocks, while Mao and Huang (2000) argued that the tax does not directly affect stock prices, and only has an indirect impact.

The Effects of Capital Gains Tax on Stock Trading Volume

Feldstein and Yitzhaki (1978) investigated the relationship between tax rate and stock trading in the United States in 1963, and observed that the raising capital gains tax rate reduced the stock trading volume and amount. If investors are affected by an increased capital gains tax rate, and this reducing their willingness to trade, then the liquidity of the market also falls. Moreover, Feldstein, Slemrod and Yitzhaki (1980) confirmed that the capital gains tax had a significant and negative influence on the amount of stock trading in the United States in 1979. In contrast, Slemrod (1982) argued that there are other reasons for the surge in trading volume in 1979. The empirical results still support the impact of decreasing the capital gains tax on stock trading volume in the New York Stock Exchange, but there is no significant evidence to prove this for the Moscow Stock Exchange. The impact of decreasing this tax on trading volume grows gradually over time, but there is no clear evidence to support the view that it has an immediate impact on securities trading.

Reese (1998) examined the US IPO securities before the tax reform bill of 1987. He stated that if the long-term capital gains have a lower tax rate than short-term capital gains, then this will improve the stock trading volume and reduce market return significantly, especially within the week of the event day. This is because investors tend to avoid tax, and this behavior has a significant impact on the stock market. The changes in the stock trading volume and market return were not obvious after the 1987 tax reform bill, and this is because the long-term and short-term capital gains tax rates were the same after this form, and thus there was no related tax avoidance behavior. Therefore, the stock market was not affected by the capital gains tax rate, and there were no significant changes in the stock trading volume.

To summarize the conclusions reported in the literature, Feldstein and Yitzhaki (1978) and Feldstein, Slemrod and Yitzhaki (1980) supported the view that the capital gains tax rate has a significant and negative influence on the stock trading volume. However, Slemrod (1982) and Reese (1998) stated that the US stock market has seen significant increases in the trading volume only at the moments of reducing the capital gains tax rate or when this is already set at a relatively low rate.

III. Tax Law

As fair taxation and fiscal soundness are conducive to economic development, in 2013 the Taiwanese government invited academics and experts, as well as representatives from various sectors, for policy discussions in this area. Based its conclusions and the views expressed by various parties, the Ministry of Finance (MOF) formulated amendments to the Income Tax Act and the Income Basic Tax Act, which established a new capital gains tax. On June 25, 2013, the Legislature approved a new round of amendments to the Income Tax Act to reinvigorate the stock market and respond to the current conditions. Its major points are summarized as follows:

1. The stipulation that a progressive tax on stock transactions would go into effect in 2013 and 2014 if the Taiwan Stock Exchange Capitalization Weighted Stock Index (TAIEX) surpassed 8,500 points was removed.
2. Beginning in 2015, the capital gains taxation of large traders, defined as those who sell over NT$1 billion (US$33 million) of stock in a year, will principally be based on government assessment of securities gains, with verification by the taxpayer.
3. Traders who sell over 100,000 shares of stock in emerging markets, obtain shares prior to an initial public offering (IPO) and sell them after the IPO, or who are not residents of the ROC are taxed under the actual-profit system retroactive to January 2013.

The actual-profit system levies a 15% capital gains tax on annual net profits from securities trading. It is collected at the same time as regular income tax. To encourage long-term investment, a 50% deduction is granted to gains on securities held for over a year, and a 75% deduction is allowed for gains on securities held over three years. From 2013 onwards, capital gains derived from transactions in marketable securities were subject to income tax at a rate of 15% for tax residents, unless various exemption criteria were met. For non-residents, there was no exemption threshold, and capital gains from transactions in marketable securities were subject to income tax at a rate of 15%. Taxpayers needed to include such tax payable in their annual income tax returns, but the tax was computed separately from their consolidated taxable income. Individuals could also offset capital losses against capital gains derived in the same tax year, but any net capital losses could not be carried back or forward.
However, starting from January 1, 2016, the income tax on gains derived by individuals from securities transactions was lifted.

IV. Methodology

Although two previous attempts at imposing a capital gains tax in Taiwan failed, the authorities still tried to introduce a new tax in 2013. This study thus attempts to investigate the effects of such a tax on the stock market, and analyzes the trading volume, amount, and market returns of stock transactions. First, we apply a t-test to investigate the tax effects on the stock market before and after 2013. Second, we apply regression analysis to analyze the actual impact of the stock market when the income tax on gains derived by individuals from securities transactions was first announced in 2013. We consider macro-economic variables, time trends, and tax rates to explore the tax effects on the stock market.

IV.1 Research Background

The effects on market return

In the literature there are different opinions about the effects on the stock market due to imposing an income tax on gains derived by individuals from securities transactions. Jang (1994) indicated that the capital gains tax rate affects the investment intention, as investors will consider the tax and maybe decide to switch to other investment projects. If the capital gains tax rate increases, the price of stock with a low dividend declines and that of stock with a high dividend goes up, indirectly affecting the stock return. However, Mao and Huang (2000) argued that the stock price will vary significantly in the short term with a capital gains tax, but not in the long term. Therefore, the stock return will not be affected, and the tax is not the main factor impacting stock market. To clarify this issue, this study attempts to investigate the effects of a capital gains tax on stock returns in the Taiwanese stock market.

The effects on trading volume and amount

Feldstein and Yitzhaki (1978) found that the capital gains tax rate has a significant negative impact on the sale of shares. If the capital gains tax rate is higher, then thus reduces the willingness of investors to sell stocks. It also affects the trading volume and amount in the stock market. Slemrod (1982) confirmed that a lower personal capital gains tax caused the trading volume of the US stock market to increase rapidly in 1978. That is, the trading volume and amount were both affected by the capital gains tax rate. Therefore, this study examines the effects on trading volume and amount before and after the levying of a capital gains tax in the Taiwanese stock market.

IV.2 Research Design

After establishing a research goal, this study makes an empirical test on the variables of interest related to the stock market. The research period, the data source and the research method are as follows:

IV.3 Research period

This study takes the issues of data acquisition and declaration of taxation into consideration, and its research period runs from January 1, 2013 to December 31, 2013.

IV.4 Data sources

Our data sources come from the Taiwan Economic Journal Database (TEJ). In 2013, the Taiwanese authorities only imposed the income tax on capital gains derived by individuals from securities transactions if they sold over 100,000 shares of stock in emerging markets, obtained shares prior to the IPO and sold them after the IPO, or were not residents of the ROC. However, they did not levy the tax on gains related to initial listings on the stock exchange market or over-the-counter market before December 31, 2012, or for those stocks for which the initial listing was less than 10,000 shares. Therefore, this study takes the stocks listed on emerging stock markets as the sample.

IV.5 Research Methods

This study applies two empirical methods to analyze the capital gains tax effects on the Taiwanese stock market. The first is the t-test, and we use this to analyze the changes in trading volume, trading amount and market return in the stock market before and after announcement of capital gains taxation in 2013. More specifically, we investigate the effects on stock market transactions and performance in Taiwan. This study compares the changes in trading volume, trading amount and market return in the stock market before and after one event day, one week, two weeks and one month. We use the daily data to analyze the effects of the capital gains tax on stock market transactions and performance.

The second empirical method is regression analysis, and we use this to further analyze the effects of the capital gains tax on the stock market when taking the unemployment rate into consideration. We apply linear regression analysis to investigate the changes in trading volume, trading amount and market return in stock market before and after announcement of capital gains taxation in 2013. We use the monthly data to analyze the effects of the capital gains tax on the stock market from January 1, 2013, to December 31 of the same year.

IV.6 Variables

(1) D2013: A dummy variable that takes on the value of one or zero, which identifies the announcement of capital gains taxation in 2013. One means the time period from July to December, 2013, while zero means the data is from outside this period.
(2) D2013L: A dummy variable that takes on the value of one to twelve, which is used to examine if the effects of capital gains taxation vary with time. One means January, two means February, and so on, with twelve meaning December, 2013.
(3) Q: Trading volume on the stock market (in millions of shares).
(4) VAL: Trading amount on the stock market (in millions of NT dollars).
(5) RET: Monthly market returns on the Taiwanese weighted share price index.
(6) UNt: Unemployment rate.
(7) T-rate: Tax rate on capital gains derived from transactions in marketable securities.

There are several disadvantages to treating capital gains as ordinary income. First, the taxation of capital gains only when an asset is sold results in the "bunching" of income at those times. Under a progressive income tax system, if an asset is held for a number of years, taking all of the profit as income in one year could push a tax payer into a higher tax bracket than they would have been liable to had the gains been realized as they accrued. Second, a more troubling aspect of this bunching is the effect of inflation on the return to stockholders, and thus on their willingness to buy stocks. Because capital gains are currently not indexed for inflation, some of the perceived gains are illusory and represent no real increase in purchasing power. Third, probably the most troubling feature of the capital gains tax is the "lock-in" effect. If individuals face a high tax rate, they are unlikely to sell their securities and pay taxes on the capital gains. This lock-in effect is especially problematic for small, start-up companies, because investors who are "locked" into previous investments have a reduced incentive to sell those stocks in favor of new offerings by young companies.

Although there are many recognized drawbacks to imposing a capital gains tax, the arguments against waiving this tax are also compelling. First, although there would be an initial rise in government tax revenue, most researchers agree that this increase would be transitory, based only on the increase in selling assets immediately following the levying of the new tax. In the long-run, the government would have to cut spending or raise taxes in other areas unless it chose to incur even greater deficits. Second, lifting the tax would further undermine the progressivity of the tax system, because relatively wealthy individuals tend to receive capital income. The magnitude of this effect is difficult to pin down, however, since investors' behavior would inevitably change following any change in the tax law. Not surprisingly, there is substantial disagreement about the relative impact of waiving tax on various income groups.

V. Empirical Results

The Impact of the Capital Gains Tax on the Stock Market Return in the Short Term

The empirical results of the stock market return during three different periods of one week before and after the event day, two weeks before and after the event day, and one month before and after the event day are shown in Table 1. The market return on the event day is negative, which implies the investment profitability on that day is also negative. The declaration of capital gains taxation thus has a negative impact on stock market. As for the one-week market return, there is a significant increase in this after the declaration of capital gains taxation, which increased by 19.44% at a 1% significance level. While the two-week and one-month market returns are not significant, they also increased by 2.34% and 24.67%, respectively. This implies that the stock market is not negatively impact by the imposition of a capital gains tax. The one-week market return of the previous event day is negative, but that of the latter event day is positive. This implies that the investors were affected the day before the declaration of capital gains taxation, and this effect then disappeared after this.

Because the one-week, two-week, and one-month market returns have increased, we infer that the declaration of capital gains taxation impacts investor confidence. But market returns increase gradually after the announcement of capital gains taxation, which implies that this declaration does not have a large negative impact on market returns in the short term.

The Impact of the Capital Gains Tax on the Stock Trading Volume in the Short Term

The empirical results of the stock trading volume during three different periods of one week before and after the event day, two weeks before and after the event day, and one month before and after the event day are shown in Table 2. The one-week, two-week, and one-month trading volumes increased by 46 million shares, 52.5 million shares, and 23.6 million shares, respectively. In particular, the two-week trading volume showed a significant increase, and this implies that the declaration of capital gains taxation did not have a negative impact on the stock trading volume. Although, the stock trading volume declined on the announcement day of capital gains taxation, the one-week, two-week, and one-month trading volumes gradually picked up after that. This implies that investors soon adjusted to the new situation, and the declaration of capital gains taxation had no negative impact on the stock trading volume in 2013.

The Impact of the Capital Gains Tax on the Amount of Stock Trading in the Short Term

The empirical results for the amount of stock trading during three different periods of one week before and after the event day, two weeks before and after the event day, and one month before and after the event day are shown in Table 3. The one-week, two-week, and one-month trading amounts increased by 107.11 million NT$, 168.27 million NT$, and 73.86 million NT$, respectively. In particular, the two-week trading amount showed a significant increase, and this implies that the declaration of capital gains taxation did not have a negative impact on the amount of stock trading over this period. Although the amount of stock trading declined on the announcement day of capital gains taxation, the one-week, two-week, and one-month trading amounts gradually picked up after that day, indication that investors initial reactions gradually calmed down. Overall, the declaration of capital gains taxation had no negative impact on the amount of stock trading in 2013.

Table 1: The Impact of the Capital Gains Tax on the Stock Market Return in the Short Term

Event Date	Event	Market Return on the Event Day	One-week Market Return			
			One Week before the Event Day	One Week after the Event Day	Difference	T-value
July 10th, 2013	Declaration of imposing income tax on capital gains derived by individuals from securities transactions.	-31.4%	-1.64%	17.79%	19.44%	4.655***

Event Date	Event	Market Return on the Event Day	Two-week Market Return			
			Two Weeks before the Event Day	Two Weeks after the Event Day	Difference	T-value
July 10th, 2013	Declaration of imposing income tax on capital gains derived by individuals from securities transactions.	-31.4%	7.7%	10.04%	2.34%	0.277

Event Date	Event	Market Return on the Event Day	One-month Market Return			
			One Month before the Event Day	One Month after the Event Day	Difference	T-value
July 10th, 2013	Declaration of imposing income tax on capital gains derived by individuals from securities transactions.	-31.4%	-3.01%	21.67%	24.67%	1.649

Note: * Correlation is significant at the 0.1 level (2-tailed). ** Correlation is significant at the 0.05 level (2-tailed). *** Correlation is significant at the 0.01 level (2-tailed).

Table 2: The Impact of the Capital Gains Tax on the Stock Trading Volume in the Short Term (in Millions of Shares)

Event Date	Event	Trading Volume on the Event Day	One-week Trading Volume			
			One Week before the Event Day	One Week after the Event Day	Difference	T-value
July 10th, 2013	Declaration of imposing income tax on capital gains derived by individuals from securities transactions.	15.92	18.47	23.06	4.6	1.333

Event Date	Event	Trading Volume on the Event Day	Two-week Trading Volume			
			Two Weeks before the Event Day	Two Weeks after the Event Day	Difference	T-value
July 10th, 2013	Declaration of imposing income tax on capital gains derived by individuals from securities transactions.	15.92	17.5	22.74	5.25	3.234***

Event Date	Event	Trading Volume on the Event Day	One-month Trading Volume			
			One Month before the Event Day	One-Month after the Event Day	Difference	T-value
July 10th, 2013	Declaration of imposing income tax on capital gains derived by individuals from securities transactions.	15.92	19.3	21.66	2.36	1.504

Note: * Correlation is significant at the 0.1 level (2-tailed). ** Correlation is significant at the 0.05 level (2-tailed). *** Correlation is significant at the 0.01 level (2-tailed).

Table 3: The Impact of the Capital Gains Tax on the Amount of Stock Trading in the Short Term (Millions of NT. Dollars)

Event Date	Event	Trading Amount on the Event Day	One-week Trading Amount			
			One Week before the Event Day	One Week after the Event Day	Difference	T-value
July 10th, 2013	Declaration of imposing income tax on capital gains derived by individuals from securities transactions.	636.18	524.64	631.8	107.16	1.154

Event Date	Event	Trading Amount on the Event Day	Two-week Trading Amount			
			Two Weeks before the Event Day	Two Weeks after the Event Day	Difference	T-value
July 10th, 2013	Declaration of imposing income tax on capital gains derived by individuals from securities transactions.	636.18	527.51	695.78	168.27	3.044**

Event Date	Event	Trading Amount on the Event Day	One-month Trading Amount			
			One Month before the Event Day	One-Month after the Event Day	Difference	T-value
July 10th, 2013	Declaration of imposing income tax on capital gains derived by individuals from securities transactions.	636.18	630.94	704.8	73.86	1.403

Note: * Correlation is significant at the 0.1 level (2-tailed). ** Correlation is significant at the 0.05 level (2-tailed). *** Correlation is significant at the 0.01 level (2-tailed).

The Impact of the Capital Gains Tax on the Stock Market Return in the Long Term

As for the effect of the capital gains taxation on the market return in the long term, the empirical analysis was conducted with linear regression analysis. D2013 and D2013L, based on monthly data, are the variables used to explain the results of research and analysis. In Table 4, the dummy variables of capital gains taxation D2013 and D2013L are not significant. However, the impact of the capital gains taxation on the market return in July 2013 can be observed, with the market return rising to the end of this year. In conjunction with the previous t-test results, this shows that the capital gains taxation has a significant impact on stock market return, but not in the long term. This is because investors become used to the capital gains taxation in the long term. In addition, the unemployment rate (UNt) has a negative but not significant influence in the long term. The capital gains tax rate (T-rate) has a positive but not significant influence in the long term.

Table 4: The Impact of the Capital Gains Tax on the Stock Market Return in the Long Term

Variables	Estimated Coefficients	T-values
D2013	-0.572	-0.587
D2013L	0.036	0.042
UN_t	-0.327	-0.636
T-rate	0.512	1.489

Note: * Correlation is significant at the 0.1 level (2-tailed). ** Correlation is significant at the 0.05 level (2-tailed). *** Correlation is significant at the 0.01 level (2-tailed).

The Impact of the Capital Gains Tax on the Stock Trading Volume in the Long Term

As for the effect of the capital gains taxation on the market trading volume in the long term, the empirical analysis was conducted with the linear regression analysis. D2013 and D2013L, based on monthly data, are the variables used to explain the results of the research and analysis. In Table 5, the dummy variables of capital gains taxation D2013 and D2013L are negative, but not significant. In conjunction with the previous t-test results, this indicates that capital gains taxation has a significant impact on the two-week stock trading volume, but not in the long term. This implies the capital gains taxation only has a short-term effect on the stock trading volume. As for variable of the capital gains tax rate, the T-rate is positive and significant, which implies that the capital gains tax rate is one of the main factors affecting the stock trading volume. In addition, the unemployment rate (UNt) has a negative but not significant influence in the long term.

Table 5: The Impact of the Capital Gains Tax on the Stock Trading Volume in the Long Term

Variables	Estimated Coefficients	T-values
D2013	-0.051	-0.102
D2013L	-0.322	-0.713
UN_t	-0.026	-0.095
T-rate	0.981	5.425***

Note: * Correlation is significant at the 0.1 level (2-tailed). ** Correlation is significant at the 0.05 level (2-tailed). *** Correlation is significant at the 0.01 level (2-tailed).

The Impact of the Capital Gains Tax on the Amount of Stock Trading in the Long Term

As for the effect of the capital gains taxation on the amount of stock trading in the long term, the empirical analysis was conducted with the linear regression analysis. D2013 and D2013L, based on monthly data, are the variables used to explain the results of research and analysis. In Table 6, the dummy variable of capital gains taxation D2013 is negative, but not significant. This implies that the capital gains taxation only has a small negative effect on the amount of stock trading. D2013L is positive, but not significant, which implies that the amount of stock trading rises to the end of this year, and the capital gains taxation does not have an impact on the amount of stock trading in the long term. As for variable of capital gains tax rate, the T-rate is positive and significant, which implies that the capital gains tax rate is one of the main factors affecting the amount of stock trading. In addition, the unemployment rate (UNt) has a positive but not significant influence in the long term.

Table 6: The Impact of the Capital Gains Tax on the Amount of Stock Trading in the Long Term

Variables	Estimated Coefficients	T-values
D2013	-0.314	-0.321
D2013L	0.519	0.601
UN_t	0.584	1.198
T-rate	0.814	4.373***

Note: * Correlation is significant at the 0.1 level (2-tailed). ** Correlation is significant at the 0.05 level (2-tailed). *** Correlation is significant at the 0.01 level (2-tailed).

VI. Conclusion

To summarize the empirical results of the t-test and linear regression analysis, this study finds that the declaration of imposing income tax on capital gains derived by individuals from securities transactions had no negative impact on stock market return, trading volume and trading amount in the short term. However, this tax had no long terms effects on the Taiwanese stock market.

For the short term, the market return was affected on the five trading days before and after the announcement of capital gains taxation, due to investors changed expectations. There is a significant increase in the one-week market return that reaches a significance level of 1%. Although the market return continues to rise, there is no impact in the long term. The effects of imposing an income tax on the capital gains derived by individuals from securities transactions on the market return are not significant. The unemployment rate has a negative but not significant influence on the market return. The two-week stock trading volume increased significantly and reached a 1% significance level. This implies that there was no negative impact in the short term. However, in the long term the other variables show that imposing capital gains tax had a negative but not significant influence on the trading volume, and a positive and significant influence on trading volume in the long term. This implies that there was little effect on the long-term trading volume. The weekly and monthly amounts of stock trading increased slightly, and the two-week amount of trading increased with a significance level of 5%. However, in the long term the amount of trading did not have much impact, and the effect did not achieve significance. Imposing income tax on the capital gains derived by individuals from securities transactions has no negative impact on the amount of market trading in the long term.

This study is rigorous in its research process, but there are still some limitations. First, this study is based on the Taiwanese stock market, but each country or region has its own economic and political differences or situations. The results of this study can thus only apply to the majority of investors in Taiwan, and their application to other regions should be investigated in future works. Second, this study is limited by time and cost factors, and applied a cross-sectional approach which used only one event point in time for data collection. Therefore, the proposed model can only explain the factors that are used by investors at a particular time, and cannot observe the behaviors of investors over time. We thus recommend that future researchers conduct long-term observations of the same sample to better understand the influence of a capital gains tax on securities transactions.

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