WHAT ARE EFFECTS OF TAX CHANGES ON MARKET RISK - A CASE IN LISTED VIET NAM INVESTMENT AND FINANCIAL SERVICE COMPANIES

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RESEARCH ISSUES
We mention some issues on the estimating of impacts of tax rates on beta for listed investment and finance companies in Viet Nam stock exchange as following:

- Issue 1: Whether the risk level of investment and finance firms under the different changing scenarios of tax rates increase or decrease so much.
- Issue 2: Whether the disperse distribution of beta values become large in the different changing scenarios of tax rates estimated in the investment and finance industry.

LITERATURE REVIEW
Smith (2004) mentions in Chicago, properties located in a designated TIF (tax increment financing) district will exhibit higher rates of appreciation after the area is designated a qualifying TIF district when compared to those properties selling outside TIF districts, and when compared to properties that sell within TIF district boundaries prior to designation.

Then, Vikas and David (2008) said that the change in the tax law, by itself did not cause the housing bubble but other factors play a larger role, such as: a failure by regulators to intervene.

Vieri et all (2011) found out tax system could affect economic factors that trigger the financial crisis, such as: mortgage interest, management performance - based remuneration, and securitization process. Thomas et all (2011) recognized that tax incentives may indeed have exacerbated the behaviour of economic agents, leading them to wrong economic decision. Then, Richard (2011) supported the view that Austria's debt represented the crisis for a state relied on taxation. George and Jot Yau (2012) found that there is a positive relationship between transaction cost and price volatility, suggesting that the imposition of a transaction tax could increase financial market fragility, increasing the likelihood of a financial crisis rather than reducing it. Beside, Georgia and Vassilis (2012) considered shortcomings in tax system in Greece that results in low tax revenues and fiscal deficits which led to the current sovereign debt crisis.

Next, Ruud et all (2013) said that greater tax bias is associated with significantly higher aggregate bank leverage, and this in turn is associated with a significantly greater chance of crisis. Then, Sung, Mark and Laura (2013) also indicated that business property values are more responsive to changes in tax rates as compared to residential property. Finally, tax rate can be considered as one among many factors that affect business risk of construction material firms.
CONCEPTUAL THEORIES

The impact of fiscal policy on the economy

Tax policy is one among major fiscal policies. It could enable the economy to growth or vice versa. Besides, using tax policies and rules could affect the excessive using of leverage or debt, as well as the number of financial transactions in businesses and the economy. In the financial crisis 2007-2009, tax policy is not the cause whereas the government could use it to help the economy and business. However, we might note that the wrong use of tax policy might partly cause the crisis impacts become more serious.

METHODOLOGY

In this research, analytical research method is used (for a period 2007-2011 four- or five-years period to estimate systemic risk results and tax impacts), philosophical method is used and specially, tax rate scenario analysis method is used. Analytical data is from the situation of listed investment and finance firms in VN stock exchange and current tax rate is 25%. Finally, we use the results to suggest policy for both these enterprises, relevant organizations and government.

GENERAL DATA ANALYSIS

The research sample has 10 listed firms in the investment and finance market with the live data from the stock exchange. First, we estimate equity beta values of these firms and use financial leverage to estimate asset beta values of them. Second, we change the tax rate from 25% to 28% and 20% to see the sensitivity of beta values. In 3 cases (rate = 20%, 25%, and 28%), asset beta mean is estimated at 0.572, 0.574 and 0.575. Also in 3 scenarios, we find out var of asset beta estimated at 0.169 (almost the same) which shows small risk dispersion. Tax rate changes almost has no effect on asset beta var under financial leverage.

EMPIRICAL RESEARCH FINDINGS AND DISCUSSION

In this research, data used are from total 10 listed investment and finance material companies on VN stock exchange (HOSE and HNX mainly). In the scenario 1, current tax rate is 25% which is used to calculate market risk (beta). Then, two (2) tax rate scenarios are changed up to 28% and down to 20%, compared to the current corporate tax rate. Market risk (beta) under the impact of tax rate, includes: 1) equity beta; and 2) asset beta.

Scenario 1: current tax rate is 25%

In the case of tax rate of 25%, all beta values of 10 listed firms on VN investment and finance market as following:

| Order No. | Company stock code | Equity beta | Asset beta (assume debt beta = 0) |
|-----------|--------------------|-------------|----------------------------------|
| 1         | AGR                | 1.370       | 0.313                            |
| 2         | APG                | 0.648       | 0.630                            |
| 3         | APS                | 0.895       | 0.382                            |
| 4         | AVS                | 0.546       | 0.425                            |
| 5         | BSI                | 1.125       | 0.873                            |
| 6         | BVS                | 2.159       | 1.592                            |
| 7         | CLS                | 0.662       | 0.331                            |
| 8         | CTS                | 0.812       | 0.546                            |
| 9         | PVF                | 1.365       | 0.119                            |
| 10        | VNR                | 0.922       | 0.525                            |

Source: Search data

Scenario 2: tax rate increases up to 28%

If corporate tax rates increases up to 28%, all beta values of total 10 listed firms on VN investment and finance market as below:
Table 2 - Market risks of listed investment and financial service firms (t = 28%)

| Order No. | Company stock code | Equity beta | Asset beta (assume debt beta = 0) |
|-----------|--------------------|-------------|----------------------------------|
| 1         | AGR                | 1.370       | 0.313                            |
| 2         | APG                | 0.649       | 0.631                            |
| 3         | APS                | 0.895       | 0.382                            |
| 4         | AVS                | 0.550       | 0.428                            |
| 5         | BSI                | 1.133       | 0.879                            |
| 6         | BVS                | 2.159       | 1.592                            |
| 7         | CLS                | 0.662       | 0.331                            |
| 8         | CTS                | 0.812       | 0.546                            |
| 9         | PVF                | 1.365       | 0.119                            |
| 10        | VNR                | 0.922       | 0.525                            |

Source: Search data.

Scenario 3: tax rate decreases down to 20%

If corporate tax rate decreases down to 20%, all beta values of total 10 listed firms on the financial service market in VN as following:

Table 3 - Market risk of listed investment and financial service firms (t = 20%)

| Order No. | Company stock code | Equity beta | Asset beta (assume debt beta = 0) |
|-----------|--------------------|-------------|----------------------------------|
| 1         | AGR                | 1.370       | 0.313                            |
| 2         | APG                | 0.649       | 0.629                            |
| 3         | APS                | 0.895       | 0.382                            |
| 4         | AVS                | 0.540       | 0.420                            |
| 5         | BSI                | 1.112       | 0.863                            |
| 6         | BVS                | 2.159       | 1.592                            |
| 7         | CLS                | 0.662       | 0.331                            |
| 8         | CTS                | 0.812       | 0.546                            |
| 9         | PVF                | 1.365       | 0.119                            |
| 10        | VNR                | 0.922       | 0.525                            |

Source: Search data.

All three above tables and data show that values of equity and asset beta in the case of increasing tax rate up to 28% or decreasing rate down to 20% have small fluctuation.

Comparing statistical results in 3 scenarios of changing tax rate:

a. tax rate = 25%

| Statistic results | Equity beta | Asset beta (assume debt beta = 0) | Difference |
|-------------------|-------------|----------------------------------|------------|
| MAX               | 2.159       | 1.592                            | 0.5669     |
| MIN               | 0.546       | 0.119                            | 0.4268     |
| MEAN              | 1.050       | 0.574                            | 0.4767     |
| VAR               | 0.2332      | 0.1694                           | 0.0638     |

Note: Sample size : 10

Source: Search data.

b. tax rate = 28%

| Statistic results | Equity beta | Asset beta (assume debt beta = 0) | Difference |
|-------------------|-------------|----------------------------------|------------|
| MAX               | 2.159       | 1.592                            | 0.5669     |
| MIN               | 0.550       | 0.119                            | 0.4306     |
| MEAN              | 1.052       | 0.575                            | 0.4770     |
| VAR               | 0.2329      | 0.1698                           | 0.0631     |

Note: Sample size : 10

Source: Search data.
What are effects of tax changes on Market Risk - a Case in Listed Viet Nam Investment and Financial Service Companies

| Statistic results | Equity beta | Asset beta (assume debt beta = 0) | Difference |
|-------------------|-------------|----------------------------------|------------|
| MAX               | 2.159       | 1.592                            | 0.5669     |
| MIN               | 0.540       | 0.119                            | 0.4205     |
| MEAN              | 1.048       | 0.572                            | 0.4763     |
| VAR               | 0.2338      | 0.1689                           | 0.0649     |

Note: Sample size: 10

Source: Search data.

Based on the above results, we find out: Equity beta mean values in all 3 scenarios are acceptable and have positive relation with the increasing tax rates, despite of little high, in all 3 cases of changing tax rate, beta values are little higher than (>1, but asset beta mean values are much smaller (<0.6). In the case of current tax rate of 25%, equity beta value fluctuates in a wide range from 0.546 (min) up to 2.159 (max value is much higher) and asset beta fluctuates from 0.119 (min) up to 1.592 (max). If corporate tax rate increases to 28%, equity beta moves from 0.550 (min) up to 2.159 (max) and asset beta moves from 0.119 (min) up to 1.592 (max). Hence, we note that there is a little increasing change in equity beta min value if corporate tax increases. When tax rate decreases down to 20%, equity beta value changes from 0.540 (min) up to 2.159 (max) and asset beta changes from 0.119 (min) up to 1.592 (max). So, there is small decreasing changes in equity/asset beta min values when tax decreases in scenario 3.

Besides, Exhibit 7 informs us that in the case 28% tax rate, both average equity/asset beta value of 10 listed firms increases slightly up to 0.001. Then, when tax rate reduces to 20%, average equity/asset beta value of 10 listed firms reduce to 0.002.

The below chart 1 shows us: when tax rate decreases down to 20%, average equity and asset beta values decrease slightly (1.048 and 0.572) compared to those at the initial rate of 25% (1.050 and 0.574). At the same time, when tax rate increases up to 28%, average equity and asset beta increase just slightly (to 1.052 and 0.475). However, the fluctuation of equity beta value (0.234) in the case of 20% tax rate is little higher than (>1 the results in the rest 2 tax rate cases.

**Chart 1** - Comparing statistical results of three (3) scenarios of changing tax rate

Source: Search data.

**RISK ANALYSIS**

In the case of decreasing tax rate, (20%), the market and companies can receive more benefits such as generating more jobs and compensation, and it encourages the economic growth, but the government budget can have deficit and the government has to cut expenses, as well as the rich will receive more benefits and the social imbalance will become wider. Changes in tax rates can have both positive and negative impacts on the local market. In the case of increasing tax rate (28%), the government will have budget to finance public expenditures, but the tax
could reduce both demand and supply. Furthermore, it will discourage savings and investments, as well as hinder the economic growth. The debt level of business sector also needed to be considered if the government would like to change the tax rates.

CONCLUSION AND POLICY SUGGESTION

In summary, the government continues to increase the effectiveness of building the legal system and regulation and macro policies supporting the plan of developing both the construction and the construction material market. The Ministry of Finance Continue to increase the effectiveness of fiscal policies and tax policies which are needed to combine with other macro policies at the same time, although we could note that in this study, tax rate movement has positive relation with the risk level. Certainly, the government bodies could choose either changing tax rates or cutting public expenditures.

The State Bank of Viet Nam continues to increase the effectiveness of capital providing channels for both construction material and real estate companies. Finally, this paper suggests implications for further research and policy suggestion for the Viet Nam government and relevant organizations, economists and investors from current market conditions.

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What are effects of tax changes on market risk? - a case in listed Viet Nam investment and financial service companies

Quais são os efeitos das mudanças fiscais sobre o risco de mercado? - um caso em empresas de investimento e serviços financeiros listados no Vietnã

¿Cuáles son los efectos de los cambios fiscales en el riesgo de mercado? - un caso en las empresas de inversión y servicios financieros de Viet Nam que cotizan en bolsa

Resumo
A crise financeira tem afetado muitos mercados acionários globais, bem como a bolsa de valores Viet Nam. Este estudo analisa os impactos da política fiscal sobre o risco de mercado para as empresas listadas no setor de serviços financeiros e investimentos não bancários, o chamado setor de serviços financeiros, conforme se torna necessário. Primeiro, usando métodos quantitativos e analíticos para estimar o ativo e o beta de patrimônio líquido do total de 10 empresas listadas no setor de serviços financeiros Viet Nam com um modelo tradicional adequado, descobrimos que os valores betas, em geral, para muitas empresas são aceitáveis. Em segundo lugar, em 3 cenários diferentes de mudança de alíquotas (20%, 25% e 28%), reconhecemos que não há grande dispersão nos valores beta de capital próprio, estimados em 1,048, 1,050 e 1,052. Esses valores são apenas pouco superiores aos das construtoras listadas VN, mas muito superiores aos das empresas bancárias listadas. Em terceiro lugar, ao alterar as alíquotas em 3 cenários (25%, 20% e 28%), reconhecemos que o patrimônio/ativo beta é o mesmo (0,23 e 0,16) se a alíquota aumentar de 20% para 25%, então sobe de 25% para 28%.

Palavras-chave: Risco de mercado. Estrutura financeira. Crise financeira. Impostos. Serviços financeiros e indústria de investimentos.

Abstract
The financial crisis has been affected many global stock markets, as well as the Viet Nam stock exchange. This study analyzes the impacts of tax policy on market risk for the listed firms in the non-banking financial service and investment industry, so-called financial service industry, as it becomes necessary. First, by using quantitative and analytical methods to estimate asset and equity beta of total 10 listed companies in Viet Nam financial service industry with a proper traditional model, we found out that the beta values, in general, for many companies are acceptable. Second, under 3 different scenarios of changing tax rates (20%, 25% and 28%), we recognized that there is not large disperse in equity beta values, estimated at 1,048, 1,050 and 1,052. These values are just little higher than those of the listed VN construction firms but much higher than those of listed banking firms. Third, by changing tax rates in 3 scenarios (25%, 20% and 28%), we recognized equity /asset beta are most the same (0,23 and 0,16) if tax rate increases from 20% to 25%, then goes up from 25% to 28%.

Keywords: Market risk. Financial structure. Financial crisis. Tax. Financial service and investment industry.

Resumen
La crisis financiera ha afectado a muchos mercados de valores mundiales, así como a la bolsa de Valores de Viet Nam. Este estudio analiza los impactos de la política fiscal sobre el riesgo de mercado para las empresas cotizadas en la industria de servicios financieros no bancarios y de inversión, la llamada industria de servicios financieros, a medida que se hace necesario. En primer lugar, utilizando métodos cuantitativos y analíticos para estimar la beta de activos y acciones de un total de 10 empresas que cotizan en bolsa en la industria de servicios financieros de Viet Nam con un modelo tradicional adecuado, descubrimos que los valores beta, en general, para muchas empresas son aceptables. En segundo lugar, bajo 3 escenarios diferentes de cambio de tasas impositivas (20%, 25% y 28%), reconocimos que no hay una gran dispersa en los valores beta de capital, estimados en 1,048, 1,050 y 1,052. Estos valores son solo un poco más altos que los de las empresas de construcción de VN que cotizan en bolsa, pero mucho más altos que los de las firmas bancarias cotizadas. En tercer lugar, al cambiar las tasas de impuestos en 3 escenarios (25%, 20% y 28%), reconocimos que la beta de acciones / activos son más iguales (0,23 y 0,16) si la tasa de impuestos aumenta del 20% al 25%, luego sube del 25% al 28%.

Palabras-clave: Riesgo de mercado. Estructura financiera. Crisis financiera. Impuestos. Servicios financieros e industria de inversión.