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THE LONG-RUN PERFORMANCE OF SEASONED EQUITY OFFERINGS WITH RIGHTS

EVIDENCE FROM THE SWISS MARKET

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Abstract

We examine the long-run performance of firms that offer seasoned equity on the Swiss market. Swiss firms use offerings with rights to raise new equity and they can issue three types of securities. Moreover, the tax law has for some firms the effect of increasing the issuing frequency. We find that most SEOs are small as a percentage of the firm's market capitalisation. The leverage ratios change often (up and down) during a three-period post-SEO horizon. The long-run abnormal returns are insignificant relative to size and book-to-market matching portfolios. These findings are corroborated by the fact that a portfolio of issuing firms do not exhibit a risk adjusted (Fama and French three factor model and Time-varying beta) abnormal performance. These findings are in accordance with the growing literature showing that the US SEOs do no more have abnormal negative performance. Finally, we show that Swiss firms have an incentive to use SEOs as a substitute to stock dividends. This particular feature help to explain the high frequency of SEOs in Switzerland before 1992.

JEL *classification* : G14, G32

EXECUTIVE SUMMARY

There is mixed empirical evidence about the long-run stock performance following a Seasoned Equity Offering (SEO). The first results found on the US market are puzzling. They show that firms raising new capital under-perform over long periods of time firms that do not. However, a growing literature mitigates the interpretation of these results and focuses on mispricing problems. The aim of this research is to examine the influence of the institutional context on the motive of a firm to issue equity and, consequently, on the long-run stock performance. We study the SEOs made by Swiss firms between 1982 and 1994.

The Swiss legal environment valid until 1992 had direct implications on the role and the frequency of equity issues. Stock dividends were taxed as cash dividends at a withholding rate of 35 % while capital gains were free of taxes. Therefore, some Swiss firms had a strong incentive to offer new stocks at a very discounted price instead of stock dividends. In that sense, an equity issue was no longer an instrument of the financing policy but a part of the dividend policy. We call these denatured offerings "quasi SEOs".

For the trade-off between SEOs and stock dividends to be profitable, firms that issue equity should not under-perform firms that do not. We measure the 3-year post-SEO abnormal stock performance of issuing firms according to several benchmarks (portfolio of matching firms and beta pricing models). In support of our hypothesis, we find no under-performance. Furthermore, several characteristics of the offerings give credit to the "quasi SEOs" argument. First, the issuing price discount is large (46 % of the market price) which ensures the shareholder to make an important capital gain if he sells his new stock. Second, the size of the offering is small (less than 10 % of the market value of the firm in contrast to 15 % in the US and 20 % in France). Therefore, the amount raised would not be sufficient to finance investment projects and not large enough to

generate free cash flow problems. Finally, the issuing frequency is high (2 or 3 offerings within a 3-year period). This periodicity mimics dividends distribution. Since 1992, the stock dividends have been much less taxed and the characteristics of Swiss SEOs have become comparable to international standards. Our main conclusion is that the institutional context can alter the signification or function of a particular financial operation. This implies that the firm's motive behind one specific event is not homogenous across different institutional environments. Therefore, one should always have these considerations in mind while explaining the impact of an event on the firm's value.

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1. Introduction

Several empirical studies on long-run stock performance following a seasoned equity offering (SEO) have been made in the United States but few in Europe where the market conditions and the legal environment are very different. American firms long-run reaction to SEO is indeed significantly negative over a 3- or 5-year horizon after the issue (see Eckbo and Masulis, 1995, p. 1044; Loughran and Ritter, 1995; Spiess and Affleck-Graves, 1995). Even when bonds or convertible bonds are issued, the same negative stock price reaction is underlined (see Spiess and Affleck-Graves, 1999). These findings are puzzling for at least two reasons. First, it is surprising that firms conducting a SEO use the proceeds in a way that penalises the investors. Second and more important, it is inconceivable that the latter would still subscribe to the offer knowing these conditions. Information asymmetry could explain part of the underperformance. The new shares are bought by investors who could be less informed than managers or existing shareholders. Teoh, Welch and Wong (1998) show that managers have a tendency to manipulate intermediate corporate earnings (accruals in particular) before the SEO in such a way that the issuing price is overvalued, this overvaluation being corrected gradually during the three following years. One could expect the correction delay to be shorter.

A growing literature mitigates the interpretation of the results found in the previous studies. The critics focus on mispricing problems and can be classified in the following categories : time aggregation of abnormal returns, pricing model specification and time dependence of the events. First, two classical techniques are employed to cumulate abnormal returns on the long-run, namely the

cumulative abnormal returns (CAR) and the buy and hold abnormal returns (BHAR). However, both of them lead to statistical problems. Cumulating one-period returns over a long time interval induces a positive or negative bias due to measurement errors of the observed returns (see Conrad and Kaul, 1993; Barber and Lyon, 1997). The use of BHAR can reduce this bias. On the other hand, BHAR are subject to severe inference problems in statistical tests (see Barber and Lyon, 1997; Kothari and Warner, 1997).

Second, the results of long-run event studies are highly sensitive to the model specification and especially to the selected benchmark (see Mitchell and Stafford, 1998). For instance, the use of Fama and French's three-factor model in conjunction with value-weighted returns eliminates the abnormal performance (see Brav, Geczy and Gompers, 2000). Small and low book-to-market firms contribute to most of the underperformance which can be reduced with value weighting. However, according to Jegadeesh (1997), only book-to-market is able to explain the anomaly.

Finally, the events are not independent from each other and from the calendar time. The use of a benchmark that allows for a time varying risk premium suppresses the abnormal performance (see Eckbo, Masulis and Norli, 2000). Furthermore, the abnormal performance becomes insignificant for firms conducting subsequent SEOs (see Brav, Geczy and Gompers, 2000).

What comes out of the literature on long-run performance is that it does not exist a unique methodology able to give proper results. In fact, the models used to detect abnormal performance do not specify well the alternative hypothesis to no abnormal performance. Therefore, this misspecification of the models could not lead to market efficiency rejection. In a recent paper, Fama (1998) argues that if some event studies exhibit long-run abnormal returns, it is not due to market inefficiency to integrate all information in the stock prices but to what he calls

“chance”. If we consider a large set of events the firm is subject to, apparent over-reaction of stock prices is about as common as under-reaction. Furthermore, post-event continuation of pre-event abnormal returns is about as frequent as post-event reversal. According to Fama, most of the anomalies tend to disappear with reasonable technical changes.

If we look closely at the empirical work that has been done on the stock performance, no events systematically show an abnormal reaction of the same sign. For instance, even if the average abnormal returns are negative on the long-run for SEOs, a significant number of firms exhibit a positive performance. In Spiess and Affleck-Graves (1995), 40 % of the SEO sample companies outperform their benchmark after three years. Similar proportions are reported in Affleck-Graves and Page (1996) and in Levis (1995) for related events.

Previous studies restrict their validity to one institutional setting, that is the United States. The aim of this research is to explore the long-run performance of SEO in a different legal environment. The Swiss legal system is a mix between civil and common law that ensures less protection to shareholders than in the United States (see La Porta, Lopez-de-Silanes, Schleifer and Vishny, 1997). However, in the case of SEO, the law enforces the firms to issue equity with subscription rights. This procedure prevent capital dilution and let the shareholder manage his voting rights dilution. The informational gap between issuers and buyers is reduced because they are mainly both insiders. Therefore, the long-run stock performance could be influenced by the stocks issuing process. The empirical evidence is more complex: Kang, Kim and Stultz (1999) do not find abnormal performance for SEOs with rights in Japan while Affleck-Graves and Page (1996) show that the converse is true in South Africa. An implication of the Swiss legal system is the very extensive banking system. Actually, bank loans constitute the main source of firms’ external financing. Banks play an important

role in monitoring and they are entirely part of the security market. Second, Swiss firms can issue three types of securities (two voting shares and one non-voting). For each new SEO, subscription rights are given to all existing shareholders whatever the type of the offered shares. Third, as dividends are highly taxed when capital gains are not, the Swiss tax law has a direct influence on the firms frequency to issue equity as well as on the purpose of the offering.

As shown by Loderer and Zimmermann (1988), the performance of Swiss firms after a SEO is rather positive. Moreover, the abnormal performance after one year is not identical for all types of securities. However, because of the short sample period, they are unable to find any statistically significant evidence of long-run abnormal performance. On the other hand, Caramanolis, Gibson and Tuchschmid (1996) examine the short-run stock price reaction to SEO announcement. They do not detect any significant abnormal reaction when all security types are aggregated. Though, the results become also significantly positive for one of the voting shares when analysed separately.

These preliminary remarks underline the interest that we find in undertaking a study on the neutrality of subscription rights in long-run SEO stock performance. The remainder of the paper is organised as follow : in section 2, we describe more deeply the Swiss institutional context. We present and analyse the sample of SEO firms in section 3. The portfolio matching methodology and the empirical results are exposed in section 4. In Section 5, we check the robustness of the results by using a risk-based alternative. Finally, we present our conclusions in section 6.

2. The Swiss institutional context

2.1. The issuing process

In Switzerland, two issuing methods are employed to raise equity in cash. The first one is the ordinary seasoned equity offering. The shareholders' general meeting decides to raise equity at the absolute majority. The decision includes the number of new shares to be issued, the face value, the type(s) of securities, the issuing price and the subscription rights. The board of directors publish an issuance report with all the SEO modalities. It is important to remark that the law does not require to communicate the use of the proceeds. The offering is then realised and a final report is edited. The whole procedure has to be done in the three months following the general meeting's decision. The second method, the authorised offering, allows the board of directors to raise equity within the next two years according to the rules defined in the company's status (i.e., the total amount to be raised). Then, the board is free to decide how and when to proceed to the SEO. In fact, it could even conduct several "smaller" SEOs during the 2-year period. The total amount raised in an authorised offering can not exceed half of the existing equity book value.

Both issuance processes are accompanied with subscription rights. These rights are used so that, if the existing shareholder wants it, his stake in the firm's capital could be left unchanged both for his proportion in the balance of votes and for his proportional right to corporate earnings. Therefore, subscription rights protect existing shareholders against capital dilution. These prescriptions should prevent any change in the shareholders' wealth. When the rights are issued, the existing shareholders have about a week to decide if they want to take part in the offering or sell their rights to outside investors. Within this week, the rights can be traded freely on the market.

2.2. The type of shares

Swiss firms have the possibility to issue and list three types of securities when they raise equity. Two of them are voting shares (registered shares, R; bearer shares, B) and the third is non-voting (participation certificates, PC). All three kinds give the right to their holders to receive a dividend and though they are considered as equity. The law states a clear distinction between the voting shares and the non-voting one. In the balance sheet, the total face value of PC equity has to be separated from the aggregated one of the two other equity forms. Furthermore, the total face value of PC cannot exceed twice the one of bearer and registered shares altogether. On the other hand, no distinction is made in the other equity accounts.

Before the 90's, Swiss firms used the different types of securities as a way to limit take-over threats. The firm had the possibility to refuse the transfer of its registered shares to undesirable investors, with some restrictions and within a certain lapse of time. As his name had to be registered in the shareholders' record, the owner of a registered share was known by the firm at any time. In fact, the company had the right to deny the transfer until the buyer had proved to have acquired the stocks in his own name and for his own need. As long as the buyer was not accepted, the seller kept all the property and participation rights (legal interdiction of dividing). The firm could also refuse to acknowledge a buyer when a maximum number of registered shares, defined in the firm's status, was overtaken. In this case, the buyer had yet all the rights attached to his shares except for the voting right and he should be registered in the record as a non-voting shareholder. Since the late 80's, most of the firms have started open their registered equity to foreigners but it had sometimes a deep impact on the stock price (see Loderer and Jacobs, 1995; Stultz and Wasserfallen, 1995).

If registered shares succeed in keeping the control of the firm in “safe” hands, they are not sufficient to cover the firm’s need in equity financing. Therefore, bearer shares can be issued. They are in fact common shares. The owner is the one who holds the stock and the firm has no control or power over him. This form of security is typically useful to let foreigners and pension funds invest in the firm.

Until the introduction of the new corporate law in July 1992, both voting shares had a minimum legal face value of CHF 100. Consequently, the market price was high and could prevent some investors to buy the stock. In order to bypass this problem, firms issued low face value participation certificates which had no legal status under the old corporate law. This type of security was mainly used in the 80’s. The legal differences between security types were reduced in 1992 and most of the PCs were converted into either one or the other voting shares. Nowadays, most of the firms have one type of security (bearer or registered) in their capital structure.

Each form of security addresses itself to specific investors. This helps to explain why previous studies were sensitive to the type of securities (see Loderer and Zimmermann, 1988; Caramanolis, Gibson and Tuchschmid, 1996). The fact that Swiss firms can be multi-security types firms has one more implication on the design of our study. The post-event performance has to be analysed at two different levels. First, we observe the individual stock price reaction to SEO and second we examine the performance of the firm that raises equity. In that sense, a firm is considered as a multi-security portfolio: for each firm, we form a value-weighted portfolio of the different types of shares outstanding. In other countries, the stock price reaction is identical to and not separable from the firm’s performance.

2.3. Tax considerations

Swiss legal characteristics may have at least two direct implications on the companies' motives to proceed to several subsequent SEOs in a rather short time interval. The first implication is related to the possible trade-off between capital gains non-taxation and dividend taxation. Cash payments (i.e. dividend payment) to shareholders are taxed at a withholding rate of 35 % while capital gains are free of taxes. Until the introduction of the new corporate law, stock dividends were considered by the law as cash payments and consequently taxed. In that sense, there was a strong incentive to issue new stocks at a very discounted price instead of paying stock dividends. Of course for this procedure to be worth doing, SEO should have no negative abnormal impact on the stock price. Since July 1992, stock dividends are no longer considered as cash payments. Nevertheless, the face value of the new stocks is still taxed at 35 %. Therefore, the advantage to conduct a SEO instead of distributing stock dividends has been strongly reduced.

The second legal implication has to do with the high minimum legal face value of voting shares before July 1992. Because the minimum value is quickly reached, stock splits have a very limited power in lowering the stock price level. In that case, SEO can be used as a substitute. This effect -Bigelli (1998) calls it the "quasi-split effect"- is more effective when the issuing price is low. If Swiss firms conduct SEOs to benefit from the quasi-split effect, we should observe the same stock price reaction as for stock splits. Again, the new corporate law which has strongly lowered the minimum face value, mitigates the appealing of such a strategy. Hence, since 1993, we observe a large increase in the number of conventional splits with no abnormal price reaction around the announcement date (see Dubois and Russi, 1993) and a low number of SEO each year.

3. Description of the data

3.1. The SEO market in Switzerland

The data on the SEOs are collected from the "Offizielle Zeitschrift der Zürcher Börse" and from the "Guide Suisse des Actions" starting from January 1982 to December 1997. Table 1 presents the figures about the number of firms that raise equity, the number of SEOs and the number of operations on stocks.

As one SEO could involve more than one type of shares, we define an operation on stock as the issuance of one type of shares. During the total period, 104 firms conduct 249 SEOs (firm sample) or 379 operations on stocks (stock sample).

Table 1: Number of SEOs and operations on stocks in Switzerland 1982-1997

Period	all SEO firms	firms with less than 3 SEOs		firms with 3 or more SEOs	
1982 - 97					
Number of SEO firms	104	65	(62.5%)	39	(37.5%)
Number of SEOs	249	84	(33.7%)	165	(66.3%)
Number of operations on stocks	379	118	(31.1%)	261	(68.9%)
1982 - 86					
Number of SEO firms	55	18	(32.7%)	37	(67.3%)
Number of SEOs	101	20	(19.8%)	81	(80.2%)
Number of operations on stocks	147	29	(19.7%)	118	(80.3%)
1987 - 92					
Number of SEO firms	73	36	(49.3%)	37	(50.7%
Number of SEOs	119	45	(37.8%)	74	(62.2%)
Number of operations on stocks	198	68	(34.3%)	130	(65.7%)
1993 - 97					
Number of SEO firms	28	19	(67.9%)	9	(32.1%)
Number of SEOs	29	19	(65.5%)	10	(34.5%)
Number of operations on stocks	34	21	(61.8%)	13	(38.2%)

We distinguish the numbers of SEO firms, offerings and operations on stocks because one firm can issue equity several times over the period and can offer up to three different types of securities. Firms with less than 3 SEOs over the period are considered as low issuing frequency firms opposite to high issuing frequency firms that do 3 or more SEOs. The firm's issuing frequency is determined over the 1982-1997 period and not for each sub-period.

We find that 37.5% of the issuers make about 66% of the offerings. Some Swiss firms proceed to three or more SEOs over the total period. During the first

two sub-periods (1982-86 and 1987-92), these high issuing frequency firms are doing a large majority of the events. The proportion falls dramatically in the latest period (1993-97) after the introduction of the new corporate law. However, for all the periods, the percentage of operations on stocks made by high issuers is very similar to the percentage of SEOs, which is not a surprise.

As shown in Panel A of Table 2, most of the offerings take place between 1985 and 1990. This observation is valid for all the security types, although the PC high issuing period is more concentrated (from 1985 to 1987). Bearer shares are the most commonly issued stocks (162 offerings or 43 % of the stock sample). They are followed by registered shares (111 offerings or 29 %) and PCs (106 offerings or 28 %). In 1988, the number of PC offerings decreases severely to almost zero. In fact, after 1992, most of the firms have converted this type of security into one of the voting shares.

The distribution of the SEOs throughout the year is concentrated between May and September because shareholders' general meetings are normally held in April, May or sometimes June. As 90 % of the SEOs are ordinary offerings, they are expected to be done in the three-month period following the general meeting's decision.

As most of the US studies do not include the financial firms, we separate them from the non-financial companies. We observe that financial firms (SF) are relatively active in issuing equity (87 offerings, 36 % of the total).

Table 2 : Description of the Swiss seasoned equity offerings 1982–1997

	Stock sample				Firm sample		
	Bearer	**Registered**	**Part. Certif.**	**All**	**Non Financial**	**Financial**	**all**
Panel A : Number of SEOs							
1982	3	5	3	**11**	2	4	**6**
1983	5	3	3	**11**	7	4	**11**
1984	9	7	5	**21**	6	7	**13**
1985	20	13	21	**54**	20	13	**33**
1986	18	14	18	**50**	22	16	**38**
1987	22	13	25	**60**	25	12	**37**
1988	13	10	4	**27**	12	5	**17**
1989	25	12	9	**46**	22	5	**27**
1990	16	11	3	**30**	13	4	**17**
1991	8	5	5	**18**	9	2	**11**
1992	6	6	5	**17**	5	5	**10**
1993	4	3	2	**9**	5	1	**6**
1994	2	2	0	**4**	2	2	**4**
1995	3	1	0	**4**	2	1	**3**
1996	4	1	1	**6**	3	3	**6**
1997	4	5	2	**11**	7	3	**10**
Total	**162**	**111**	**106**	**379**	**162**	**87**	**249**
Panel B: Size of the offerings in % of the market value of equity							
1982 - 1997							
average %	16	12	22	16	22	11	18
median %	8	6	9	7	11	6	9
1982 - 1986							
average %	14	6	27	16	27	9	19
median %	5	5	12	7	14	4	8
1987 - 1992							
average %	16	14	18	16	20	9	17
median %	9	6	11	8	10	7	9
1993 - 1997							
average %	17	20	19	18	16	25	19
median %	10	13	18	12	13	11	13

We analyse both stock and firm samples. The stock sample is split into three security types sub-samples (bearer, B; registered, R; and participation certificates, PC). The firm sample is split into two firm activity sub-samples (Non-financial, NF and financial F). The last column of the stock and the firm samples ("all") present the figures about the "all stocks" and "all firms" samples. The size of the offerings is computed by dividing the total amount raised by the market value of equity prior to the SEO. Median size is more representative because average size is strongly influenced by few very large offerings.

Another important characteristic of the Swiss SEOs is their small relative size. In order to calculate the relative size, we divide the SEO proceeds by the pre-event market capitalisation of either the stock or the firm. Figures about the SEO size are shown in Panel B of Table 2. The median relative size is equal to 7 % for the stock sample and 9 % for the firm sample. For instance, the median size is about 15 % in the United States and 21 % in France. SEOs are larger for non financial firms (11 % at the firm level) and quite smaller for financial companies (only 6 %). As for the number of offerings, we observe a large change in the 1993-97 sub-period where the median size is always above 10 %. With the new corporate law, the number of SEOs decreases and their size increases. This evolution is especially important for the financial companies that represent 42 % of the high issuers. PC is the type of security for which the relative size is the larger. This could be expected because PCs were typically a 80's phenomenon and several firms issued them extensively[2].

During the sixteen-year period, 39 among the 104 firms proceed to at least three offerings and up to seven (two firms). In Panel A of Table 3, we observe that the median relative size of the SEOs decreases when the issuing frequency increases.

High frequency issuers are larger firms. Their median market capitalisation ranges from 336 millions of CHF to 902 millions. On the other hand, size of the low frequency issuers is under 200 millions. Book-to-market median ratios of SEO firms do not vary too much according to the issuing frequency. Growth or maturity matter does not seem to be a factor influencing the firm's frequency to issue equity. In Panel B of Table 3, we categorise the number of SEOs according to the issuing frequency and to the size of the offering. Most of the SEOs belongs

[2] Pirelli's (1983), Nestlé's (1985), Adia's (1986) and Berner Holding's (1987) offerings of participation certificates were larger than 100 % of the pre-event market value.

to the two smaller size classes (0 % to 15 %). Some very large offerings appear in the high frequency classes and upwardly bias the average size. This consideration justifies the use of the medians in our descriptive statistics.

Table 3 : Firm's frequency to issue equity and size of the offering

	Number of SEOs conducted by a firm						
	one	**two**	**three**	**four**	**five**	**six or more**	**all sample**
Panel A : Characteristics of the SEO firms							
number of SEO firms	46	19	12	14	7	6	104
average size of the SEO (%)	22.12	14.33	12.58	16.41	16.06	26.06	18.02
median size of the SEO (%)	13.59	10.48	8.80	7.96	4.57	7.00	8.68
SEO firms median size in millions of CHF	164.90	194.25	354.47	335.97	671.90	902.20	353.60
SEO firms median book-to-market	0.85	0.61	0.74	0.54	0.56	0.63	0.62
SEOs average amount raised in millions of CHF	59.36	64.25	38.70	48.56	112.26	136.30	64.42
Firms average amount raised in millions of CHF	59.36	128.50	116.11	194.23	561.29	863.23	378.00
Panel B : Number of SEOs according to the size of the offering							
							Total
SEO smaller than 5 %	8	10	12	11	18	12	**71**
SEO between 5 % and 15 %	16	13	14	33	8	13	**97**
SEO between 15 % and 50 %	19	15	9	9	6	9	**67**
SEO larger than 50 %	3	0	1	3	3	4	**14**
SEO larger than 100 %	1	0	0	1	2	2	**6**
Total number of SEOs	**46**	**38**	**36**	**56**	**35**	**38**	**249**

The issuing frequency is analysed exclusively at the firm level. Size of the offering, size of the firm and book-to-market ratio are therefore computed for the firm, represented by a value weighted multi-security type portfolio. The SEOs average amount raised is the average raw amount raised in one offering. Firms average amount raised is the average total amount raised by a firm (the sum of the offerings). The last column ("all") represents the "all firms" sample.

3.2. SEO and changes in the financial leverage

In order to estimate the relative importance of SEOs on the capital structure, we examine the changes in the leverage ratio[3] of the SEO firms. Results are presented in Table 4.

Table 4 : Changes in the leverage ratio of the SEO firms

	Rate of changes in leverage ratio						
	0%-5%	**5%-15%**	**15%-50%**	**50%-100%**	**> 100%**	**Total**	**%**
Absolute changes in leverage ratio of SEO firms							
number of firms	34	50	56	28	14	182	100.00
median relative size of the SEO (%)	3.27	6.93	10.55	10.44	5.99		
median market value in millions CHF	1115	658	534	468	370		
Seo firms which leverage ratio increases							
number of firms	16	20	17	16	14	83	45.60
median relative size of the SEO (%)	2.49	8.18	6.92	9.43	5.99		
median market value in millions CHF	1572	658	468	1038	370		
Seo firms which leverage ratio decreases							
number of firms	17	30	39	12	0	98	53.85
median relative size of the SEO (%)	4.14	6.57	11.08	14.71			
median market value in millions CHF	1001	651	553	260			

The leverage ratio is the book value of long-term debt divided by the book value of total equity. The rate of change in the leverage ratio is the difference between the leverage ratios in year *t-1* and in year *t*. The relative size of the SEO represents the total amount raised divided by the market value of equity prior to the offering. Banks and insurance companies are not included in the SEO firms sample because their leverage ratio is not clearly identifiable.

One could expect the leverage ratio to systematically decrease after a SEO. Though, over 182 firms[4] for which data on leverage were available, we find that for 83 companies the leverage ratio increases and it decreases for 98 firms. In

[3] We compute the leverage ratio by dividing the long-term debt by the equity book value. A change in the leverage ratio is the variation between the pre-SEO fiscal year ratio and the one of the SEO fiscal year.

[4] Banks and insurance companies are not included in this sample.

more than 45 % of the cases, the issue is accompanied by an increase in the long-term debt that is greater than the amount of money raised, at least in book value. The median size of the offering increases with the absolute change in the leverage ratio. This finding is still true when we separate the positive changes from the negatives. It means that the larger the issue is, the larger the long-term debt increase could be. From these considerations, it is clear that the main motivation for doing a SEO is not re-balancing the capital structure by lowering leverage.

By examining the evolution of the leverage ratio over two periods (the SEO fiscal year and the next fiscal year), we see that the firms financing policy is not straightforward. A leverage ratio increase (up, U) in the first period could by followed by either another increase (UU) or a decrease (UD) in the next period. The same is true for a decrease in the first period (down, D, could lead to DU or DD). The two-period evolution of leverage ratios are summarised in Table 5.

The 178 firms with full data availability are distributed almost uniformly across the four possible evolution patterns. The percentage of reversals in leverage ratio evolution is 46.63 % and continuation occurs in 53.37 % of the cases.

Table 5 : Changes in the leverage ratio from the SEO fiscal year to the next

	UU	**UD**	**DD**	**DU**	**Total**	**reversals (%)**	**continuations (%)**
number of firms	38	44	45	51	**178**		
percentage	21.35	24.72	25.28	28.65	**100.00**	53.37	46.63

Leverage ratio changes of SEO firms are considered in the offering fiscal year and in the next fiscal year. Positive changes are symbolised by a U for up and negative changes by a D for down. The UU column indicates firms which leverage ratio increases in both SEO fiscal years and the following one. Reversal means that the sign of the change in leverage ratio is modified from one year to the other. A continuation occurs when the sign of the change is the same over the two years.

The evolution of the leverage ratio could be influenced if the same firm conduct a SEO in two consecutive years. We denote 48 firms that do so and once again we find no systematic relation, even if this time the percentage of continuations is more important. The figures for the third period evolution of the leverage ratios for our 2-consecutive-year SEO sample are at odds with those

found after two periods: 45.83% are reversals and 54.17% are continuations. The motivation of issuing equity at a high frequency is not a matter of repaying outstanding debt.

3.3. The sample

For our descriptive statistics we have considered all the SEOs with rights made by Swiss firms between 1982 and 1997. As we examine the stock performance over a 36-month horizon after the SEO, we exclude from our samples the offerings made within the last three years. The low number of SEO after the introduction of the new Corporate Law (10 operations on firms during 93-94 against 220 for the 82-92 period) precludes a specific analysis of this sub-samples. Because of high issuing frequency pattern, the long-run analysis of the abnormal performance may become intricate. In fact, if equity issuance has any long-run impact on stock prices, one event occurring in year 0 could influence the performance of any overlapping offering realised by the same firm within the 36-month horizon. After testing for overlapping impact, we find that it creates a negative bias in the abnormal returns. However, the significance of the results (not shown here, available from the authors upon request) is not affected. In order to avoid overlapping problems, we take out of our samples every subsequent offerings conducted within the analysis horizon. From our initial sample of 379 operations on stocks, we eliminate 21 operations that occur after 1994 and 128 operations because of overlapping. We are left with a “all stocks” sample of 230 observations. Following the same rationale, the “all firms” sample contains 135 out of the 249 offerings in the original sample (19 SEOs occur after 1994 and 95 are overlapping events).

Our analysis horizon has a maximum length of 36 months but we examine the price reaction after 6, 12 and 24 months as well. Data about monthly stock prices,

dividends and market prices are taken from Datastream[5]. In addition, we ensure that firms in our samples are listed for at least one year before the event. During this pre-SEO period, 8 firms conduct an Initial Public Offering of a new security type. We do not eliminate these companies because first, their number is very small and second, the next SEO is done over all the outstanding types of securities. When we build the firm multi-security portfolios, not taking into account one of the security types would bias the selection of the control portfolio.

4. Is the performance abnormal after a SEO?

This section investigates the performance of firms and stocks after a SEO. First, we present the methodology used to construct control portfolios. Second, we define the measures used to test the null hypothesis of no abnormal performance. Third, empirical results are presented for both the samples and sub-samples.

4.1 The benchmark

As we have seen, the methodology used in order to detect the impact of a specific event on the stock price has to be carefully designed. Instead of selecting a matching firm as in Loughram and Ritter (1995) and Spiess and Affleck-Grave (1995), we choose a control portfolio of firms (stocks) that are not subject to the event. The rationale for that is to have a better matching for the SEO firms. In fact, the Swiss stock market has a limited number of firms (stocks) and the control portfolio is generally closer in terms of firm's (stock) characteristics than the matching firm (stock). Moreover, as large firms are often involved in SEO, we avoid to take as control firms the few ones which do not realise this type of

[5] We are grateful to Dusan Isakov from HEC Genève for the access to the database.

operation. The control portfolio is selected according to the size and book-to-market ratio[6].

The methodology we use to select the control portfolio consists in minimising the global distance between the SEO firm (stock) and the firms (stocks) in the control portfolio according to a set of control variables. Jegadeesh (1997) uses a similar method to select a matching firm. At the event month, we range the non SEO firms (stocks) according to the matching criterion and we select the ten firms (stocks) which are closest to the issuing stock (firm). When a firm (stock) is delisted or engages itself in a SEO process, we switch it with the next closest firm (stock) at the current month on a point forward basis. We do this procedure in order to keep constant the number of firms (stocks) in the control portfolio. For a given SEO, the distances are computed in event month 0. In order to measure the closeness of two firms (stocks), we estimate the following distance :

$$(1) \qquad d_i = \sqrt{\frac{(Size_i - Size_c)^2}{s^2_{Size}} + \frac{(BM_i - BM_c)^2}{s^2_{BM}}}$$

where

d_i is the Euclidian distance between the SEO firms (stocks) *i* and the control firm (stock) *c* at event month 0;

Size is the market value of *i* (*c*) at time 0;

BM is the book-to-market of *i* (*c*) at time 0;

$s^2_{Size}\left(s^2_{BM}\right)$ is the cross-sectional variance of the series of the variable *Size* (*BM*) at time 0.

Each control variable is standardised in order give the same weight to both size and the book-to-market. Book values are taken at the end of each fiscal year

[6] As in the US, size and book-to-market are variables that help explain stock returns in Switzerland (see Fama and French, 1998).

which occurs mostly in December. Book-to-market ratios are computed by dividing the last year book value[7] (firm or stock) by the market value (stock or firm) of the current month.

Following Loderer and Zimmermann (1988), we control for a share type effect by analysing each type of shares separately. We split the "all stocks" sample into three individual security sub-samples (bearer, registered and PC). The control portfolio of a SEO specific type of shares only includes stocks of the same type (i.e. the control portfolio of a SEO bearer share is formed exclusively with bearer shares). The next characteristic we test is related to the firm activity. Our motivation comes from the relative high number of financial firms that issue equity on the Swiss market. From the "all firms" sample, we form two sub-samples with "financial firms" and "non-financial firms". As for the stock sub-samples, control portfolio in the firm sub-samples are formed with firms of the same activity. Because on average financial issuers conduct more SEOs of smaller size than other firms, analysing them separately could lead to interesting results. To summarise, we have four different samples at the stock level (including the "all stocks" samples and three sub-samples) and three at the firm level (including the "all firms" sample and two sub-samples).

4.2 Determining the abnormal performance

In spite of Conrad and Kaul (1993), we compute cumulative average monthly abnormal returns in order to have a common base to compare our results with previous studies. The average monthly adjusted returns (AAR_t) are calculated for either 6, 12, 24 and 36 months after the seasoned equity offering as :

$$(2) \qquad AR_{i,t} = R_{SEO,it} - R_{CP,it}$$

[7] The book value of a stock is computed as follows. The total firm book value is split according to the type of share proportionally to the product of the face value and the number of outstanding shares of each type.

(3) $$AAR_t = \sum_{i=1}^{n_t} w_{i,t} AR_{i,t}$$

where

$AR_{i,t}$ is the abnormal return of the seasoned equity firm (stock) *i* in event month *t*;

$R_{SEO,it}$ is the return on seasoned equity firm (stock) *i* in event month *t*;

$R_{CP,it}$ is the return on the control portfolio of *i* over the same period;

$w_{i,t}$ is the weight of firm (stock) *i* in event month *t*;

n_t is the number of seasoned equity firms (stocks) in event month *t*.

Along this section, we construct an equally weighted and a value-weighted portfolio. The weights are defined as follows:

Equally weighted portfolio: $w_{i,t} = 1/n_t$ [8]

Value-weighted portfolio: $w_i = mv_{i,0} \Big/ \sum_{i=1}^{n} mv_{i,0}$

where $mv_{i,0}$ is the size of the firm relative to the market.

We consider the market values at the time of the SEO otherwise the weights are not independent from past returns. The cumulative average monthly adjusted return for months 1 to *T* ($CAAR_T$) is then computed as :

(3) $$CAAR_T = \sum_{t=1}^{T} AAR_t$$

[8] The number of stocks (firms) is time-varying as some SEO stocks are delisted during the 36-month period. As Spiess and Affleck-Graves (1995) did, the holding-period returns of that firm (stock) and its matched portfolio are truncated on the same day. However, this problem is of little concern because the very small number of firms (stocks) delisted (2 firms over 135 and 12 stocks over 230).

In order to analyse the exact influence of market conditions and firms characteristics on the firm (stock) performance, the null hypothesis of no abnormal returns is:

$$\left.\begin{array}{ll} H_0: & CAAR_T = 0 \\ H_A: & CAAR_T \neq 0 \end{array}\right\} \text{where } T = \{6, 12, 24, 36\} \text{ months}$$

Under the null, the standardised cumulated average abnormal returns adjusted for cross-sectional variance and first order autocovaraince is distributed as Student-t (see Ritter, 1991). A (non parametric) sign-test based on the proportion of positive cumulated abnormal returns ($CAR_{i,T}$) is presented to check the results.

We also compute the average buy and hold abnormal return (*BHAR*). We define the holding period return for the stock (firm) *i*, from month 1 to month *T* as :

$$(4) \qquad HPR_i = \prod_{t=1}^{T} (1 + R_{it})$$

Then the average buy and hold abnormal return is computed as :

$$(5) \qquad BHAR_T = \sum_{i=1}^{n_T} w_{i,T} \left[\prod_{t=1}^{T} (1 + R_{SEO,it}) - \prod_{t=1}^{T} (1 + R_{CP,it}) \right]$$

where

$R_{SEO,it}$ is the return on seasoned equity firm (stock) *i* in event month *t*;

$R_{CP,it}$ is the return on the control portfolio of *i* over the same period;

n_T is the number of stocks at month *T*;

$w_{i,T}$ is the weight of firm (stock) *i* in event month *T*;

The null hypothesis of no abnormal buy and hold returns is tested as previously. However, as Barber, Lyon and Tsai (1998) noted, buy and hold series are highly skewed so we use an adjusted Student-t statistics.

4.3. Abnormal returns of SEO firms

The abnormal returns of SEO firms are presented in Table 6. Cumulative abnormal returns are shown on the left part of the table and buy and hold returns are on the right.

Table 6 : Long-run performance of SEO firms relative to a size and book-to-market control portfolio

Samples		Cumulative Abnormal Return				Buy and Hold Abnormal Return			
		6-month	12-month	24-month	36-month	6-month	12-month	24-month	36-month
All firms (135)									
Equally weighted	mean	-2.93 [b]	-1.46	-0.47	1.60	-2.97 [b]	-1.77	0.97	2.85
	t-stat	-2.06	-0.72	-0.17	0.46	-2.49	-0.81	0.28	0.62
Value-weighted	*mean*	*0.28*	*-2.15*	*-1.68*	*3.03*	*0.59*	*-1.96*	*-1.38*	*4.89*
	t-stat	*0.26*	*-1.44*	*-0.80*	*1.16*	*0.59*	*-1.34*	*-0.55*	*1.52*
Non parametric	median	-1.89	-2.59	-0.41	-2.09	-2.99 [b]	-4.00	-5.49	-6.98
	sign test	-1.30	-1.30	-0.17	-0.43	-2.19	-1.47	-1.04	-1.13
Non Financial (91)									
Equally weighted	mean	-3.50	-3.13	-3.34	-3.91	-3.48 [b]	-3.17	-1.17	-1.71
	t-stat	-1.99	-1.26	-0.94	-0.90	-2.21	-1.08	-0.18	-0.25
Value-weighted	*mean*	*3.94* [a]	*-0.38*	*5.44* [b]	*8.03* [b]	*4.45* [a]	*-0.31*	*7.28* [b]	*10.64* [b]
	t-stat	*2.94*	*-0.20*	*2.02*	*2.42*	*2.65*	*-0.15*	*2.01*	*2.41*
Non parametric	median	-1.34	-2.28	-2.47	-4.18	-1.43	-4.14	-7.03	-10.48
	sign test	-0.74	-1.16	-0.42	-0.96	-0.74	-0.95	-1.28	-1.39
Financial (44)									
Equally weighted	mean	-0.60	2.48	9.01	17.17 [a]	-0.76	1.67	8.23	14.82 [a]
	t-stat	-0.24	0.71	1.82	2.83	-0.41	0.60	1.63	2.78
Value-weighted	*mean*	*-0.93*	*2.25*	*5.76*	*16.89* [a]	*-1.01*	*2.76*	*5.38*	*18.69* [a]
	t-stat	*-0.44*	*0.75*	*1.36*	*3.26*	*-0.58*	*0.98*	*1.35*	*3.84*
Non parametric	median	-0.91	0.93	4.70	9.93	-2.28	-0.35	0.84	2.55
	sign test	-0.61	0.61	0.91	1.55	-1.23	0.00	0.61	0.91

[a] significant at 1 % [b] significant at 5 %.

CAR are computed as : $CAR_T = \sum_{t=1}^{T} w_{i,t} \sum_{i=1}^{n_t} \left[R_{SEO,it} - R_{control,it} \right]$ where T is for 6, 12, 24 and 36 months, $R_{SEO,it}$ is the return on SEO stock or firm i in event month t, and $R_{control,it}$ is the return on the control portfolio of i at tth month after the event.. The average *BHAR* is calculated as $\sum_{i=1}^{n_T} w_{i,t} \left[\prod_{t=1}^{T} (1 + R_{SEO,it}) - \prod_{t=1}^{T} (1 + R_{control,it}) \right]$ where $R_{SEO,it}$ is the return on stock or firm portfolio i at month tth month after the event, $R_{control,it}$ is the return of the matched stock or firm of i at tth month after the event, T is the holding period considered (6, 12, 24 or 36 months) and n_T is the number of the SEO stocks for the T-month period. Equally and value weighted portfolios are constructed. The t stat for the CAR is computed as in Ritter (1991) as : t stat $= CAR_t \cdot \sqrt{n_t} \,/ \left[t \cdot \text{var} + 2 \cdot (t-1) \cdot \text{cov} \right]^{1/2}$ where t is the event month, var is the average (over 36 months) cross-sectional variance and cov is the first-order autocovariance of the AR_t series. The t stat is the skewness adjusted t stat suggested in Barber, Lyon and Tsai (1999) and is calculated as $tstat_t + (1/3) \cdot \left(tstat_t^2 / \sqrt{n_t} \right) \cdot skew_t + (1/6n_t) \cdot \sqrt{n_t} \cdot skew_t$ where $t\ stat_t$ is the t stat value computed before and $skew_t$ is the skewness of the *BHAR* serie. The sign test is computed as : *sign test* = $(p_t - 0.5) / \sqrt{p_t \cdot (1 - p_t)} \cdot \sqrt{n_t}$, where p_t is the percentage of positive abnormal returns at month t.

The general pattern emerging from these preliminary results is radically different from the one observed in previous studies (see Loughran and Ritter, 1995 and Spiess and Affleck-Grave, 1995). We do not detect an overall negative abnormal performance for the sample of SEO firms (equally weighted or value-weighted) at the 36-month horizon. Both the cumulative abnormal returns abnormal returns and the buy and hold abnormal returns are slightly positive but not significant at 5%. However, the median is negative and the sign-test rejects the null hypothesis. When looking at the sub-samples, it comes out that large firms are likely to generate this positive abnormal performance especially the financial ones. At shorter horizons, the performance of small SEO firms is similar to non-SEO firms as abnormal returns are small in magnitude and not significant. The 6-month horizon is an exception which can be attributed to the bad performance of small non financial firms. However, the significant abnormal performance is not persistent across time (and statistical tests). For a specific sample, having a significant performance according to one criterion does not imply a significant performance according to others.

4.4. Abnormal returns of SEO stocks

As it is shown in Table 7, the “all stocks” sample do not show any significant abnormal performance at the 36-month horizon, the median of buy and hold portfolio being an exception. The results are qualitatively the same as those obtained previously for the SEO firms. This is because most of the firms issue the three type of share at the same time.

At the sub-sample level, Bearer shares performance is first negative (significant at 5%) at the 6-month and 12-month horizons (value-weighted). At the 36-month horizon, the performance reverts and becomes positive and significant (at 1% for *BHAR* and at 5% for *CAR*) only. Most of the time, the “registered stocks” sub-sample exhibits a negative (but not significant) *CAR*.

Table 7: Long-run performance of SEO stocks relative to a size and book-to-market control portfolio

Samples		Cumulative Abnormal Return				Buy and Hold Abnormal Return			
		6-month	12-month	24-month	36-month	6-month	12-month	24-month	36-month
All stocks (230)									
Equally weighted	mean	-2.43 [b]	-1.29	-0.11	1.02	-2.59 [b]	-2.37	-0.12	1.91
	t-stat	-2.10	-0.79	-0.05	0.35	-2.52	-1.46	-0.02	0.52
Value-weighted	*mean*	*-0.92*	*-3.51* [a]	*-4.28* [b]	*-2.93*	*-0.72*	*-3.69* [a]	*-5.06* [b]	*-3.50*
	t-stat	*-1.12*	*-3.01*	*-2.57*	*-1.42*	*-0.95*	*-3.07*	*-2.54*	*-1.23*
Non parametric	median	-3.06	-1.55	-1.19	-0.13	-3.16 [b]	-3.04	-4.59	-7.97 [b]
	sign test	-1.80	-0.66	-0.27	-0.27	-2.48	-1.60	-1.48	-2.19
Bearer (99)									
Equally weighted	mean	-2.26	0.20	0.56	1.04	-2.50	-1.00	2.72	3.79
	t-stat	-1.29	0.08	0.16	0.23	-1.75	-0.41	0.61	0.73
Value-weighted	*mean*	*-2.62* [b]	*-3.54* [b]	*-1.54*	*6.81* [b]	*-2.66* [b]	*-3.61*	*-0.66*	*10.05* [a]
	t-stat	*-2.11*	*-2.02*	*-0.61*	*2.19*	*-2.24*	*-1.89*	*-0.18*	*3.03*
Non parametric	median	-3.16	2.89	2.59	3.41	-4.04	-1.83	-2.00	-3.00
	sign test	-1.32	0.30	1.03	0.62	-1.95	-0.50	-0.41	-0.41
Registered (75)									
Equally weighted	mean	-3.36	-4.06	-2.54	0.53	-3.36 [b]	-4.97	-3.61	2.78
	t-stat	-1.65	-1.41	-0.62	0.10	-2.05	-1.95	-0.81	0.44
Value-weighted	*mean*	*1.41*	*-3.15*	*-2.09*	*1.60*	*1.57*	*-3.54*	*-4.46*	*1.63*
	t-stat	*0.93*	*-1.47*	*-0.69*	*0.43*	*1.03*	*-1.73*	*-1.56*	*0.33*
Non parametric	median	-3.05	-4.86 [a]	-1.01	-0.51	-3.42	-6.31 [a]	-5.27	-9.95
	sign test	-1.05	-3.63	-0.23	-0.47	-1.28	-3.63	-1.66	-0.94
Part. Certif. (56)									
Equally weighted	mean	2.85	2.50	5.01	7.05	2.85	2.36	3.47	7.84
	t-stat	1.23	0.76	1.06	1.19	1.48	0.75	0.73	1.35
Value-weighted	*mean*	*2.73*	*2.98*	*3.43*	*4.29*	*2.70*	*2.96*	*4.10*	*3.83*
	t-stat	*1.40*	*1.07*	*0.86*	*0.86*	*1.82*	*1.23*	*0.87*	*0.77*
Non parametric	median	2.72	0.28	5.97	6.47	1.64	-0.70	1.07	1.40
	sign test	1.93	0.13	1.25	0.99	1.64	-0.13	0.14	0.42

[a] significant at 1 % [b] significant at 5 %.

CAR are computed as : $CAR_T = \sum_{t=1}^{T} w_{i,t} \sum_{i=1}^{n_t} \left[R_{SEO,it} - R_{control,it} \right]$ where *T* is for 6, 12, 24 and 36 months, $R_{SEO,it}$ is the return on SEO stock or firm *i* in event month *t*, and $R_{control,it}$ is the return on the control portfolio of *i* at *t*th month after the event.. The average *BHAR* is calculated as $\sum_{i=1}^{n_T} w_{i,t} \left[\prod_{t=1}^{T} \left(1 + R_{SEO,it}\right) - \prod_{t=1}^{T} \left(1 + R_{control,it}\right) \right]$ where $R_{SEO,it}$ is the return on stock or firm portfolio *i* at month *t*th month after the event, $R_{control,it}$ is the return of the matched stock or firm of *i* at *t*th month after the event, *T* is the holding period considered (6, 12, 24 or 36 months) and n_T is the number of the SEO stocks for the *T*-month period. Equally and value weighted portfolios are constructed. The *t* stat for the CAR is computed as in Ritter (1991) as : *t* stat = $CAR_t \cdot \sqrt{n_t} \Big/ \left[t \cdot \text{var} + 2 \cdot (t-1) \cdot \text{cov} \right]^{1/2}$ where *t* is the event month, var is the average (over 36 months) cross-sectional variance and cov is the first-order autocovariance of the AR_t series. The *t* stat is the skewness adjusted *t* stat suggested in Barber, Lyon and Tsai (1999) and is calculated as $tstat_t + (1/3) \cdot \left(tstat_t^2 / \sqrt{n_t} \right) \cdot skew_t + (1/6n_t) \cdot \sqrt{n_t} \cdot skew_t$ where *t* $stat_t$ is the *t* stat value computed before and $skew_t$ is the skewness of the *BHAR* serie. The sign test is computed as : *sign test* = $(p_t - 0.5) \Big/ \sqrt{p_t \cdot (1 - p_t)} \cdot \sqrt{n_t}$, where p_t is the percentage of positive abnormal returns at month *t*.

Depending on the test statistics, *BHAR* are found to be negative in two cases over twelve. Abnormal returns for the "PC" sample are positive but not significant with the exception of the value-weighted portfolio. It is surprising to find a negative performance for registered share, especially in the shorter horizons.

At the one-year horizon, the three types of securities show differences in the abnormal stock returns. While Bearer abnormal performance is negative (and significant), Participation Certificates abnormal performance is positive. Moreover, at the 6-month horizon, the "all-stocks sample" and the "Bearer" sub-sample show a negative abnormal performance which is sometimes significant.

Overall, the results show an insignificant performance at 36-month horizon for SEO firms and SEO stocks. At shorter horizons, the performance is mostly insignificant but it appears to be significant (positive or negative) depending on the statistical test, the horizon and the weighting scheme. These finding cast some doubts on the robustness of the methodology.

5. Are the empirical results robust?

In order to check the robustness of the results obtained with the control portfolio method, we perform two more tests based on beta asset pricing models. The first one is the Fama and French model which has become popular in estimating the long-run performance. The second one is a conditional CAPM with time-varying risk premium. It was suggested recently by Ferson and Schadt (1996) and Eckbo, Masulis and Norli (2000). The unconditional CAPM may be view as a restricted version of both models, therefore it is also estimated.

We construct an equally weighted portfolio and a value-weighted portfolio of SEO firms (stocks) as in Eckbo, Masulis and Norli (2000). To be more specific, the value-weighted portfolio consists in investing one Swiss Franc in the first firm

realising a SEO. After one month the portfolio is rebalanced according to current market values if and only if additional firms issue securities. A firm is removed from the portfolio when the third anniversary of the SEO is reached or in case of delisting; in both cases the portfolio is rebalanced. Portfolios of stocks were constructed in a similar manner.

5.1 Performance measured with the Fama and French model

According to Fama and French (1993), the expected return of the SEO portfolio is given by:

$$(6) \qquad R_{SEO,t} - R_{f,t} = a_{SEO}^{FF} + b_{SEO,1}\left(R_{m,t} - R_{f,t}\right) + b_{SEO,2}SMB_t + b_{SEO,1}HML_t + e_{SEO,t}$$

where

$R_{SEO,t}$ is the monthly return on a portfolio of issuing firms;

$R_{m,t}$ is the return of the Swiss Performance Global Index[9] (SPI Global);

SMB_t is the return on an equally-weighted portfolio of small firms values minus the return of a portfolio of large firms;

HML_t is the return on an equally-weighted portfolio of high book-to-market value firms (first 30%) minus the return of an equally-weighted portfolio of low book-to-market value firms (last 30%).

$e_{SEO,t}$ is an error term with zero mean and constant variance.

The constant term a_{SEO}^{FF} in regression (6) is the Jensen's alpha of the SEO portfolio. It is an estimate of the monthly average abnormal performance over the estimation period. However, as advocated by Loughran and Ritter (1999), it could be the case that the size and the book-to-market factors are contaminated

[9] It is a value weighted index adjusted for dividend and capital structure operations. Because it exists only since 1984, we have to build it back to 1981.

by firms involved in SEO. As Brav, Geczy and Gompers (2000) did, the factors are recomputed after excluding SEO firms (purged factors).

Table 8 : Abnormal performance computed from the Fama and French model

	Firms samples			Stocks samples			
	All firms	**Non Financial**	**Financial**	**All stocks**	**Bearer**	**Registered**	**Part. Certif.**
			Panel A : equally weighted portfolios				
Mean raw returns	0.71	0.75	0.77	0.73	0.61	0.68	0.63
Std. Dev.	4.58	5.10	4.69	4.48	4.90	4.17	5.23
Alpha CAPM	-0.07	-0.04	0.00	-0.05	-0.20	0.00	-0.03
	(-0.37)	(-0.15)	(0.01)	(-0.31)	(-1.01)	(-0.01)	(-0.15)
Alpha FF							
Not purged	-0.10	-0.10	0.01	-0.08	-0.23	-0.03	-0.07
	(-0.73)	(-0.53)	(0.07)	(-0.60)	(-1.35)	(-0.22)	(-0.39)
Purged	-0.08	-0.12	0.12	-0.07	-0.22	-0.04	-0.05
	(-0.40)	(-0.51)	(0.51)	(-0.40)	(-1.00)	(-0.21)	(-0.21)
			Panel B : value weighted portfolios				
Mean raw returns	0.91	0.97	0.89	0.88	0.62	1.14	0.45
Std. Dev.	4.69	4.95	5.25	4.69	4.73	4.82	5.60
Alpha CAPM	0.04	0.15	-0.01	0.01	-0.21	0.31	-0.27
	(0.30)	(0.74)	(-0.07)	(0.10)	(-1.24)	(1.65)	(-1.32)
Alpha FF							
Not purged	0.05	0.12	0.01	0.02	-0.21	0.31	-0.27
	(0.34)	(0.59)	(0.05)	(0.16)	(-1.22)	(1.63)	(-1.34)
Purged	0.19	0.20	0.18	0.13	-0.11	0.42	-0.14
	(1.05)	(0.88)	(0.74)	(0.76)	(-0.56)	(1.96) [b]	(-0.57)

[a] significant at 1 % [b] significant at 5 %.

First, we construct a value-weighted portfolio of SEO firms (stocks) and an equally weighted portfolio. The value-weighted portfolio consists in investing one Swiss Franc in the first firm realising a SEO. After one month, the portfolio is rebalanced according to current market values if and only if additional firms issue securities. A firm is removed from the portfolio when the third anniversary of the SEO is reached or in case of delisting; in both cases the portfolio is rebalanced. The same method applies to the equally weighted portfolio except that the same weight is given to every stock at a given date (calendar time).

We estimate the following model:

$$R_{SEO,t} - R_{f,t} = a_{SEO}^{FF} + b_{SEO,1}\left(R_{m,t} - R_{f,t}\right) + b_{SEO,2} SMB_t + b_{SEO,1} HML_t + e_{SEO,t}$$

where $R_{SEO,t}$ is the portfolio return of SEO firms (stocks), $R_{f,t}$ is the risk-free rate (one-month Euro CHF), a_{SEO}^{FF} is the Jensen's alpha (the performance); $R_{m,t}$ is the market return (SPI index); SMB_t is the return on an equally-weighted portfolio of small firms values minus the return of a portfolio of large firms; HML_t is the return on an equally-weighted portfolio of high book-to-market value firms (first 30%) minus the return of an equally-weighted portfolio of low book-to-market value firms (last 30%). We also estimate the performance with the CAPM (nested model). The results (in %) are presented for both the standard factors and the purged factors. In that case, the market index and the factors are computed after the exclusion of SEO firms (stocks). The coefficients are estimated by OLS and reported t-stat (in parenthesis) are the heteroscedasticity consistent

White (1980) estimates. As we focus on the performance, we do not report beta estimates. However, they are available upon request from the authors.

The results presented in Table 8 show that, with the exception of the registered shares value-weighted portfolio, we do not have underperformance or overperformance anymore. Moreover, they are also insensitive for both the firm sample and sub-sample as well as from the stock sample and sub-samples. The CAPM leads to the same qualitative results except. As under the null, all the models are expected to give similar conclusions, this is not a surprise. However, as discussed by Loughran and Ritter (1999), it could be the case that these models lack power in detecting abnormal performance.

5.2. Performance measured with a conditional CAPM

In the presence of time–varying expected returns a conditional Jensen's alpha is more appropriate in order to estimate the abnormal performance (see Ferson and Schadt, 1996 and Eckbo, Masulis and Norli, 2000 for instance). The message from previous studies which aim to explain the time-varying risk premium in Switzerland is mixed. Solnik (1993), Bossaerts and Hillion (1998) and Oertman (1998) find that standard lagged instruments like the short term interest rate, the long term interest rate, the dividend yield, the price to earnings and the lagged value of the risk premium itself have a low explanatory power (adjusted R^2 are equal or less than 3%). Moreover, the instruments are rarely individually significant. On the other hand, Clerc and Gibson (1999) find the change in the one month Euro CHF rate and the lagged value of the Financial Times/Standard&Poor's World Index excess return to play a significant role in explaining the Swiss risk premium at the weekly level. As there is no precise guideline for the Swiss market concerning the model to estimate, we restrict ourselves to a conditional CAPM with time-varying beta as defined in Ferson and Schadt (1996, p. 430 eq.4):

$$(7) \qquad r_{SEO,t} = a_{SEO}^{Cond} + d_0 r_{m,t} + \boldsymbol{\delta}_1' \mathbf{z}_{t-1} r_{m,t} + u_{SEO,t}$$

where

r is the return in excess of the risk free rate;

d_0 is the unconditional beta;

$\boldsymbol{\delta}_1'$ is a vector with dimension equal to the dimension of $\mathbf{Z}_{t-1}$;

$\mathbf{z}_{t-1} = \mathbf{Z}_{t-1} - E(\mathbf{Z})$ is the vector of instruments (centred) that investors use to form expectations;

$u_{SEO,t}$ is an error term with zero mean and constant variance.

The regression model in equation (7) and in particular the Jensen's alpha (a_{SEO}^{Cond}) are estimated by OLS.

In this study we retain the standard instruments. However, we explored other instruments and find the spread between Swiss long term government bonds and Swiss long term corporate bonds (Pictet Index) to be the unique significant variable among the standard type of instruments used in previous studies. As the choice of the relevant instruments is not the topic of this research, we do not present the results[10]. The performance of our SEO portfolio is estimated with two different models. The first one uses the same instruments as in Clerc and Gibson and the second one, the spread between government and corporate bonds[11].

The empirical results are presented in Table 9. Samples and sub-samples deliver the same message. Neither under-performance nor over-performance is observed after a SEO with a time-varying beta CAPM. Nevertheless, the Registered shares value-weighted portfolio, albeit insignificant at 5%, has a high Student-*t*.

[10] They are available from the authors upon request.

[11] The series are collected from Datastream

Table 9 : Abnormal performance estimated from a time-varying beta CAPM

	Firms samples			Stocks samples			
	All firms	**Non Financial**	**Financial**	**All stocks**	**Bearer**	**Registered**	**Part. Certif.**
			Panel A : equally weighted portfolios				
Model 1	0.08	0.09	0.16	0.09	-0.04	0.11	0.03
	(0.46)	(0.39)	(0.82)	(0.54)	(-0.22)	(0.59)	(0.15)
Model 2	0.01	0.07	0.01	0.03	-0.12	0.05	0.13
	(0.06)	(0.27)	(0.07)	(0.19)	(-0.61)	(0.27)	(0.64)
			Panel B : value weighted portfolios				
Model 1	0.14	0.31	0.09	0.12	-0.01	0.30	-0.17
	(1.36)	(1.53)	(0.49)	(1.12)	(-0.06)	(1.93)	(-0.89)
Model 2	0.07	0.18	0.00	0.05	-0.19	0.32	-0.16
	(0.61)	(0.90)	(-0.02)	(0.44)	(-1.17)	(1.95)	(-0.82)

[a] significant at 1 % [b] significant at 5 %.

First, we construct a value-weighted portfolio of SEO firms (stocks) and an equally weighted portfolio as before. Second, we estimate the following model:

$$r_{SEO,t} = a_{SEO}^{Cond} + d_0 r_{m,t} + \boldsymbol{\delta}_1' \mathbf{z}_{t-1} r_{m,t} + u_{SEO,t}$$

where r is the return in excess of the risk free rate; d_0 is the unconditional beta; $\boldsymbol{\delta}_1'$ is a vector with dimension equal to the number of instruments; $\mathbf{z}_{t-1}$ is the vector of instruments (centred) used by investors to form expectations. Two different models are estimated. For the first model, the set of instruments consists in the MSCI index and the first difference between the one-month Euro rate both with one lag. In the second model, we have one instrument defined as the spread between long term government bonds and long term corporate bonds (Pictet Index). The coefficients are estimated by OLS and reported t-stat (in parenthesis) are the heteroscedasticity consistent White (1980) estimates. As we focus on the performance, we do not report beta estimates. However, they are available upon request from the authors.

A closer look at the performance of the control portfolio[12] shows that there is some mismatching for the Registered shares. Our main conclusion is that, as shown recently by Eckbo, Masulis and Norli (2000), the general performance of a SEO portfolio is insignificant. However, one last characteristic of Swiss issuers has to be analysed: the high issuing frequency.

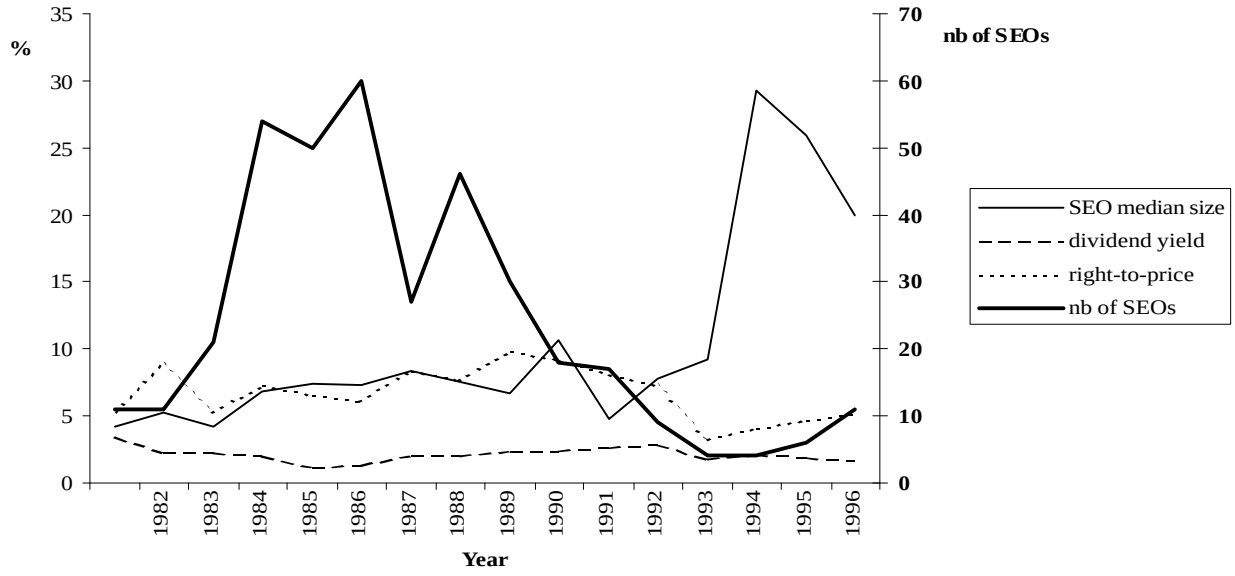
5.3. High issuance and personal taxes on dividends

Even if we do not find any persistent abnormal performance for the Swiss SEO stocks or firms, the frequency of firms to issue equity is puzzling. As we

[12] To estimate the bias introduced by taking a matching portfolio instead of beta-pricing model, we construct the following portfolio: invest 1 CHF long in the SEO portfolio and 1 CHF short in the control portfolio. The Jensen's alpha is estimated as previously. In order to save space, the results are not presented but they are available from the authors upon request.

mentioned in section 2, before the introduction of the new Corporate Law in July 1992, stock dividend was taxed as cash dividend although capital gains were free of taxes for private investors. When we look at the evolution of the SEOs over the whole period[13], we observe that 1992 constitutes a breakpoint in the issuing policy of Swiss firms (see Figure 1).

Figure 1:Evolution of the SEOs through time



All the main characteristics of the offerings are altered. First, the annual number of SEOs decreases dramatically from over 20 to less than 10 (the thick line in Figure 1). Second, the median size of the issues increases strongly (the thin line in Figure 1). It denotes a change in the motives of the firm to raise equity. This fact is underlined by the drop of the right-to-price ratio after 1992 (the dotted line in Figure 1).

[13] Swiss practitioners generally agree that the offering price should not exceed 2/3 of the pre-SEO market price and that the value of the right should be equal to at least twice the dividend. These considerations are confirmed by the data. However, these figures could change due to market conditions (bullish or bearish) and to the issuance ratio (the number of new shares relative the number of existing shares).

The right-to-price ratio corresponds to the value of the subscription right[14] divided by the market price of the stock. It measures the impact of the offering on the stock price and it can be viewed as a proxy for the issuing price discount. Therefore, a SEO with a large discount on the issuing price can be used to replicate a stock dividend distribution. We call it a "quasi" SEO, opposite to a "real" SEO that is done for a financing reason. Furthermore, a "quasi" SEO has another advantage to stock dividend because it allows the shareholder to manage the kind of remuneration he wants to benefit from. For instance, a shareholder can behave in three different manners when an offering occurs. First, he can invest in the issue and buy the new shares at a discount price. This action causes him a negative cash flow but it increases the number of stocks in his portfolio. Second, he can target a zero net cash flow by selling a part of his subscription rights and investing the proceed in the issue (zero investment strategy). These strategies are tax neutral for a private investor or a pension fund. Finally, he can sell the subscription rights and ends up with a positive cash flow. In the last case, the SEO can be assimilated to a tax free cash distribution. The dividend yield of the stocks in our sample appears to be quite low (2.11%). Over the same period and depending on the country, the dividend yield was between 3% to 4% in Europe and the USA. If we consider the right as a method to pay cash , our conclusions change dramatically. The modified dividend yield (dividend plus right) is equal to 3.80% which is in accordance to international standards. To conclude, the high frequency issuance had at least two purposes. First, it was designed to circumvent the very restrictive Corporate Law prevailing before 1992. Second, it was used reduced the very unattractive cash payments compared to the non-taxed capital gains.

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[14] The value of the subscription right is computed as : $Value_{sr} = \frac{n \times (BP - IP)}{N + n}$ where N is the number of outstanding shares before the issue, n is the number of the offered shares, BP is the stock price before the

6. Conclusion

After analysing the Swiss seasoned equity offering process, we outline several security types, high issuing frequency and small size offerings as its main characteristics. The more used issuing process is the offering with subscription rights. From the initial 358 operations on stocks, we form one “all stocks” non-overlapping sample, three sub-samples according to security types and four sub-samples according to firm activity. We also work at a firm level (231 firms offerings were considered). For that we build for each firm a value-weighted portfolio with its different security types. Then, we form three different sample and sub-samples (one “all firms” and two according to firm activity). For each sample, we compute the abnormal performance after a 6, 12 24 and 36-month horizon using the cumulative abnormal return and the buy and hold abnormal return. We select a control portfolio based on size and book-to-market as benchmark.

Unlike what is obtained on the US market, Swiss stocks and firms do not show significant abnormal performance over a 36-month horizon after a seasoned equity offering. However, some sub-samples, and only for isolated time horizons, exhibit either positive or negative abnormal performance. Most of them are found after the 6-month horizon. On average, 55 % of the stocks have a negative abnormal performance which is less than what is found in the previous studies. We add new evidence that Seasoned Equity Offerings do not necessarily lead to long-run abnormal performance (see Brav et al., 1998; Eckbo et al., 1998; Michtell and Stafford, 1998).

Swiss firms are involved in a SEO process with an unexpected high frequency compared to international standards. We explain the high issuing frequency of some firms by the fact that their "quasi SEOs" allowed them to pay tax free cash

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subscription right trading period and *IP* is the offering price.

dividends. However, since July 1992 stock dividends are not taxed as cash dividends, consequently the number of offerings has strongly decreased.

This study can be further developed in analysing the long-run stock performance after SEOs made on other European markets (France and Germany for instance). These markets are at the same time close to the Swiss market (Germany) and rather different (France). Nevertheless, they share the same method of issuing new equity, i.e. SEO with rights. German tax law can influence the motivation for a firm to issue new equity in a different manner than in Switzerland. However, French firms issuing policy is not subject to any tax law influence and stock splits limitation. This is precisely what precludes a joint study of the seasoned equity process in continental Europe markets. Anyway, both markets are very different from the US market and from each other. This is why they are of great interest in testing theories of capital structure.

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