A Practical Approach: Value-Maximizing IPO Timing Decision

Abstract

Finding the right IPO timing is one of the most crucial decisions shareholders need to take when they want to list their company on a stock exchange. This paper proposes a simple and in practice usable model to help identify a good IPO timing window. From a theoretical point of view, the model identifies capital market inefficiencies (in case there are any) and gives shareholders of the IPO candidate hints how to use them. The key tool used is a multiple-to-multiple base trade-off analysis over time. The analysis identifies relationships between relative valuation levels investors are willing to pay and relative expected change in operating performance metrics. These market-implied valuation-to-operating performance metrics change relationships are applied to the expected operating performance of the IPO candidate over time. This allows approximating a date with the value-maximizing combination of the multiple base and the market implied valuation multiple.

Key words: initial public offering, IPO timing, market efficiency, shareholder value creation
Introduction

Owners of private businesses have various motivations when thinking about the possibility of floating their business on a stock exchange ("initial public offering", "IPO"). The key consideration is usually access to capital for different purposes such as growth funding, paying down debt, selling directly part or all of the shareholders' equity interest or creating a liquid source of funding for potential mergers and acquisitions.¹

Once the strategic decision is taken on going public, shareholders need to decide when to float the business. Factors affecting the timing can be categorized as internal, i.e. company specific, and external, i.e. factors not in the control of the company. Internal factors include, for example, the growth profile of the company, the timing of the capital needs and the IPO readiness. IPO readiness means, amongst many things, if the company complies with the corporate governance requirements of a given stock exchange or has the right accounting, reporting and internal controls in place. The most important external factors include potential changes in laws and regulations which might affect the business (for example new taxes) as well as general capital market conditions², conditions in the specific sector of the IPO candidate and investor sentiment.

The key challenge when thinking about timing is to integrate the timing implications of the internal and external factors into one IPO timing decision which maximizes the value of the offering. This article proposes a tool for shareholders of private businesses who are considering an IPO to determine the optimal timing from a financial point of view via connecting the expected operating performance of the business (the internal perspective) with public market investors' view on how to value the business (the external perspective).

The general idea is to identify key operating metrics based on which public investors perform their investment and valuation decisions, understand the exact


relationship between these metrics to relative valuation levels and then apply these relationships to the specific business plan of the IPO candidate at different points in time. The result is a trade-off analysis between the market/investor implied valuation multiple and the company-specific multiple base (“Multiple-to-Multiple Base Trade-off Analysis”) which shows directionally which IPO timing window might be the best one from a financial perspective.

1. Overview of the Standard Model

The model proposed in this paper aims at understanding the market implied operating performance to valuation relationship and putting this into context with the IPO candidate's specific growth profile. The result will be a clear view as to the attractiveness of an IPO at different points in time based on a multiple-to-multiple base trade-off, i.e. the relationship between the development of the expected valuation multiple vs. the operating performance of the IPO candidate over time. It is assumed that the key objective of shareholders from a financial perspective is to maximize the present value of the equity of the company.

In order to estimate the IPO timing where the present value of equity is maximized, a company valuation at different points in time is needed. This valuation is done at each point in time based on applying market implied valuation multiples (for example Aggregate Value (AV) to EBITDA or Price-to-Earnings) to the respective operating performance metrics of the IPO candidate. This will result in an Aggregate Value or Equity Value of the IPO candidate at different points in time in the future. Companies (especially fast growing ones) often have a declining relative growth profile over time, i.e. the relative growth expectations at future dates are lower than today’s (for example, due to the base effect of a larger business or limitations on market share growth). In such cases the market-implied valuation multiples for the IPO candidate will usually also decline over time as investors tend to pay more for higher growth companies compared to lower growth companies. On the other hand,

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the multiple base grows over time, i.e. the operating metrics of the IPO candidate to which the multiple is applied to. The fundamental model proposed in this paper is a model which estimates the financial impact of the trade-off between the expected multiple decline due to declining growth expectations over time and the expected growth in the operating metrics base. Based on this trade-off analysis a nominal Equity Value curve over time can be estimated for the IPO candidate.

The obtained nominal Equity Value curve needs to be discounted to make the nominal values comparable for the IPO timing decision. This results in a discounted Equity Value curve which can identify the IPO “window” where the discounted Equity Value is maximized. The discount rate to be used will be in a practical context either the implied return on equity based on the capital asset pricing model (despite its theoretical limitations) or the target return of the shareholders (this is especially relevant when shareholders are financial sponsors).

Assuming efficient capital markets and other assumptions of the capital asset pricing model, one would predict that the IPO timing decision will be independent from the present value of equity analysis proposed in this paper, as the discounted Equity Value should be constant over time assuming no alpha. The expected growth in Equity Value is equal to the expected return on equity which is used to discount the future Equity Values.

In practice, for this relation to hold, the average valuation multiple used by investors would need to adjust based on detailed company specific growth and margin expectations. In practice, this is only true to a limited extent. Apart from market imperfections, the key reason is that investors, who ultimately will buy into the IPO candidate, will base their valuation on company specific data but also to a large extent on valuation data they obtain from analyzing the valuation and operating statistics of peers of the IPO candidate. The benchmarking of peers often (not always) leads to a market implied relationship between relative growth/ profitability and relative valuation levels which are used by investors to value companies in a given sector. Applying these market implied valuation relationships to the growth profile of the IPO candidate allows investors to access the price they are willing to pay for shares.

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of the IPO candidate. This means that instead of making only a fundamental valuation, investors benchmark the IPO candidate with already listed peers and derive their valuation based on the relative attractiveness of the IPO candidate vs. the peers.

Using valuation multiples for determining the valuation of the company is looking at only one valuation method. However, in practice valuation multiples often represent the key valuation methodology applied by investors in an IPO context, which is sometimes cross-checked with fundamental valuation methodologies like a discounted cash flow analysis. For example, Asquith analyzed 1,126 research analyst reports and found that 99% of price recommendations were based on multiples and only 13% used a discounted cash flow approach. Furthermore, multiple-based valuations factor into the valuation the general market sentiment and allow aggregating expected valuation views from various investors. Therefore, valuation multiples are not only suitable but also necessary to value the company at different points in time in an IPO context. The relative weighting of market implied valuation vs. fundamental valuation varies across sectors and individual investors. The more weight investors put on the market implied valuation, the more relevant are the results of the model proposed in this paper.

2. Identification of Peers and Focus Metrics by Investors

In order to obtain a good picture on how investors think about value, the shareholders of the IPO candidate need to identify a group of listed companies comparable to the IPO candidate. The key attribute for these peers is that investors would look at the trading of these companies in order to get a sense for the right valuation level of the IPO candidate. The judgement of which peers to include and how to potentially adjust the data set will, to a large extent, impact the results of the analysis. Therefore, a clear understanding of how investors think about the peer group is key to obtain sensible results via the model proposed in this paper. In general, the higher the number of closely comparable peers the better, the closer the business profile of

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peers matches the IPO candidate the better and outliers for company/ situation specific reasons should be excluded.

Once a peer group is identified, the shareholders of the IPO candidate will need to develop a view on which operating metrics and valuation multiples investors focus when making their investment decision. The focus metrics and applied multiples vary across jurisdictions and industries. There are at least two complementary approaches to identify the most important metrics and corresponding valuation multiples. The first one is the identification via interviews with investors as well as the knowledge of the industry by the shareholders of the IPO candidate and its advisors. The second approach, which complements the first one, is to build regression analyses based on assumed relationships. For example, many industries trade on expected EBITDA growth. In such industries a clear direct linear relationship can be often found between the valuation multiple and the growth of the EBITDA over the next two to three years. In other sectors investors may focus on cash flow, net income or book value multiples. In practice, the ordinary least squares method is often used for estimating the parameters in the linear regression model due to its simplicity and availability in standard office software packages. The standard model discussed in this article follows this approach.

Based on the above regression analyses, key focus areas of investors can be identified and quantified which best explain differences in valuation levels within the peer group in current capital market conditions. The more obvious the relationship is (in practice usually measured via R²) the more powerful the analysis proposed in this paper. In practice, it will be again a judgement call which multiple-to-growth relationship(s) to focus on but in general, the ones should be used with the highest R². The key regressions obtained will be the bases for the multiple-to-multiple base trade-off model which will combine the market implied valuation relationships with the operating performance of the IPO candidate.

3. The One-variable Model

As this paper is intended to be of practical help for shareholders who consider IPOing their company, a fictitious example will be used to develop and explain the model. The example used does not reduce the general applicability of the model to all sectors, valuation multiples and operating metrics.

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12 For an empirical discussion of multiples used see for example F. Sommer, A. Wohrmann, Triangulating the Accuracy of Comparable Company Valuations, 2011, http://ssrn.com/abstract=2360077
The Valuation Equation(s)

Using tools suggested above, it is assumed that the key relationship between valuation multiple (expressed as x-times value to EBITDA) and operating metrics growth was identified as the next-twelve-month forward (NTM) EBITDA multiple and the compounded EBITDA growth FY+0 to FY+1. The example peer group data set is shown in table 1 below.

Table 1. Example Dataset

<table>
<thead>
<tr>
<th>Company</th>
<th>Aggregate Value</th>
<th>FY+0</th>
<th>FY+1</th>
<th>FY+2</th>
<th>CARG</th>
<th>AV/EBITDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company 1</td>
<td>100</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>22.5%</td>
<td>5.0x</td>
</tr>
<tr>
<td>Company 2</td>
<td>200</td>
<td>20</td>
<td>25</td>
<td>40</td>
<td>41.4%</td>
<td>10.0x</td>
</tr>
<tr>
<td>Company 3</td>
<td>300</td>
<td>50</td>
<td>55</td>
<td>80</td>
<td>26.5%</td>
<td>6.0x</td>
</tr>
<tr>
<td>Company 4</td>
<td>400</td>
<td>30</td>
<td>30</td>
<td>55</td>
<td>35.4%</td>
<td>13.3x</td>
</tr>
<tr>
<td>Company 5</td>
<td>500</td>
<td>100</td>
<td>150</td>
<td>170</td>
<td>30.4%</td>
<td>5.0x</td>
</tr>
<tr>
<td>Company 6</td>
<td>600</td>
<td>150</td>
<td>200</td>
<td>240</td>
<td>26.5%</td>
<td>4.0x</td>
</tr>
<tr>
<td>Company 7</td>
<td>700</td>
<td>250</td>
<td>210</td>
<td>280</td>
<td>5.8%</td>
<td>2.8x</td>
</tr>
<tr>
<td>Company 8</td>
<td>800</td>
<td>300</td>
<td>300</td>
<td>400</td>
<td>15.5%</td>
<td>2.7x</td>
</tr>
<tr>
<td>Company 9</td>
<td>900</td>
<td>330</td>
<td>330</td>
<td>400</td>
<td>13.5%</td>
<td>2.9x</td>
</tr>
<tr>
<td>Company 10</td>
<td>1000</td>
<td>400</td>
<td>410</td>
<td>430</td>
<td>3.7%</td>
<td>2.5x</td>
</tr>
</tbody>
</table>

Source: the author's own work.

Chart 1. Valuation Multiple vs. Operating Metrics Growth Regression

AV/ NTM EBITDA vs. FY+0-2 Growth CAGR

Source: the author's own work.
The corresponding regression analysis is shown in chart 1. The implied regression line formula in this example is \( y = 23.406x + 0.242 \). \( R^2 \) is 0.6529. For example, a private company growing at 31% could expect to be valued at 7.5x AV/NTM EBITDA (7.5 = 23.406 * 0.31 + 0.242) based on the identified regression line.

This dataset and regression analysis allow showing and identifying a clear market/investor implied relationship between the relative valuations of the peer group vs their growth prospects.

**The Implied Multiples**

The obtained regression analysis shows how public market investors determine the valuation multiple(s) they are willing to pay based on operating growth characteristics of the individual peer group companies. In the context of an IPO of another company, investors are assumed to make their relative valuation decision also dependent on how the operating metrics of the IPO candidate compare to its listed peers. In case investors put a high emphasis on these growth-to-value relationships, then the valuation multiple they apply to the IPO candidate should be on or very close to the regression line(s).

In order to assess what might be the valuation multiples applied by investors for the IPO candidate at different points in time, the shareholders need to prepare a realistic business plan with a special focus on the forecasted development of key operating metrics likely used by investors to value the company. For the further development of the example it is assumed that table 2 shows the estimated business plan for the EBITDA development of the IPO candidate and that investor’s focus metrics is EBITDA growth.

<table>
<thead>
<tr>
<th></th>
<th>FY+0</th>
<th>FY+1</th>
<th>FY+2</th>
<th>FY+3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>220</td>
<td>300</td>
<td>360</td>
<td>430</td>
</tr>
<tr>
<td>Q2</td>
<td>230</td>
<td>320</td>
<td>380</td>
<td>440</td>
</tr>
<tr>
<td>Q3</td>
<td>240</td>
<td>340</td>
<td>410</td>
<td>470</td>
</tr>
<tr>
<td>Q4</td>
<td>270</td>
<td>360</td>
<td>425</td>
<td>485</td>
</tr>
</tbody>
</table>

Source: the author’s own work.

Based on the forecasted EBITDA development for each quarter, the implied FY+0–2 growth rate (CARG) can be derived at each point in time. These CARGs at different points in time can be put into context to the value-to-growth regressions
which were obtained from the market. This allows estimating the valuation multiple investors will likely apply at each single date of the analysis. For the used example, Chart 2 shows the implied valuation multiples graphically and table 3 analytically.

Chart 2. Implied Valuation Multiples at Different Points in Time (graphically)

![Chart 2](source: the author's own work.)

Table 3. Implied Valuation Multiples at Different Points in Time (analytically)

<table>
<thead>
<tr>
<th>FY+0</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>FY+1</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBITDA LTM</td>
<td>220</td>
<td>230</td>
<td>240</td>
<td>270</td>
<td>300</td>
<td>320</td>
<td>340</td>
<td>360</td>
<td></td>
</tr>
<tr>
<td>EBITDA FY+0-2 CAGR</td>
<td>31.4%</td>
<td>31.0%</td>
<td>30.7%</td>
<td>25.5%</td>
<td>21.1%</td>
<td>19.2%</td>
<td>17.6%</td>
<td>15.1%</td>
<td></td>
</tr>
<tr>
<td>Implied NTM Multiple</td>
<td>7.6x</td>
<td>7.5x</td>
<td>7.4x</td>
<td>6.2x</td>
<td>5.2x</td>
<td>4.7x</td>
<td>4.4x</td>
<td>4.0x</td>
<td></td>
</tr>
</tbody>
</table>

Source: the author’s own work.

The Implied Present Value of Equity

After obtaining the implied valuation multiples, the shareholders of the IPO candidate can apply these to the operating metrics of their business and will obtain the predicted Aggregate Value (in case of Aggregate Value multiples) or the predicted Equity Value (in case of Equity Value multiples) at each point in time. In case an Aggregate Value is obtained, the shareholders also need to develop a net debt forecast in order to include the effect of deleverage on the Equity Value.
After obtaining the Equity Values at different points in time, they need to be discounted to make them comparable and base a relative investment decision on them. As discussed above, the discount rate might be a CAPM-based rate or a shareholder specific target discount rate.

The forecasted discounted Equity Value is shown in table 4 and chart 3 for the developed example assuming a potential net debt development and a 10% discount rate.

**Table 4. Implied Discounted Equity Value (analytically)**

<table>
<thead>
<tr>
<th></th>
<th>FY+0</th>
<th></th>
<th></th>
<th></th>
<th>FY+1</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
</tr>
<tr>
<td>EBITDA LTM</td>
<td>220</td>
<td>230</td>
<td>240</td>
<td>270</td>
<td>300</td>
<td>320</td>
<td>340</td>
<td>360</td>
</tr>
<tr>
<td>EBITDA FY+0-2 CARG</td>
<td>31.4%</td>
<td>31.0%</td>
<td>30.7%</td>
<td>25.5%</td>
<td>21.1%</td>
<td>19.2%</td>
<td>17.6%</td>
<td>16.1%</td>
</tr>
<tr>
<td>Implied NTM Multiple</td>
<td>7.6x</td>
<td>7.5x</td>
<td>7.4x</td>
<td>6.2x</td>
<td>5.2x</td>
<td>4.7x</td>
<td>4.4x</td>
<td>4.0x</td>
</tr>
<tr>
<td>Implied AV</td>
<td>2,279</td>
<td>2,403</td>
<td>2,526</td>
<td>2,233</td>
<td>1,969</td>
<td>1,875</td>
<td>1,786</td>
<td>1,701</td>
</tr>
<tr>
<td>Net Debt</td>
<td>500</td>
<td>450</td>
<td>400</td>
<td>350</td>
<td>300</td>
<td>250</td>
<td>200</td>
<td>150</td>
</tr>
<tr>
<td>Equity Value</td>
<td>1,779</td>
<td>1,953</td>
<td>2,126</td>
<td>1,883</td>
<td>1,669</td>
<td>1,625</td>
<td>1,586</td>
<td>1,551</td>
</tr>
<tr>
<td>Discounted Equity Value</td>
<td>1,737</td>
<td>1,862</td>
<td>1,979</td>
<td>1,711</td>
<td>1,482</td>
<td>1,408</td>
<td>1,342</td>
<td>1,282</td>
</tr>
</tbody>
</table>

Source: the author’s own work.

**Chart 3. Implied Discounted Equity Value (graphically)**

Discounted Equity Value At Different Points in Time

Source: the author’s own work.
Results

Assuming the data set for peers and the IPO candidate as shown above, table 4 and chart 3 show that this model would predict that launching an IPO in Q3 FY+0 would be value maximizing. In this example, the result can be viewed as the market not fairly valuing the growth potential of the IPO candidate in the initial quarters, i.e. applying a not high enough valuation multiple relative to the value uplift shareholders can obtain from growing the multiple base (in this case the absolute EBITDA) for a few more quarters. The inflection point for this relationship is in Q3 FY+0, after which the increase in the multiple base cannot overcompensate for the market implied quarterly decrease in the valuation multiple due to deteriorating growth prospects.

Given the imperfections of the market, the assumptions used (as discussed in section 4) as well as the general unpredictability of the future, the result should be interpreted as one data point indicating in this example that waiting a few quarters is likely to increase shareholder value.

4. Core Assumptions and Extensions of the Fundamental Model

There is a set of core assumptions which shareholders of potential IPO candidates should be aware of before using the described standard model. Many of them can be mitigated via extensions of the standard model. Some of these extensions are explained below but there are more sensible extensions possible depending on the actual situation.

Investors base their investment decision on the valuation metrics identified by the shareholders of the IPO candidate

First of all, the standard model assumes that investors will make their investment decision only based on the implied valuation derived from benchmarking with peers as opposed to fundamental valuation methods. The implications of the model are incorrect/ random in case investors do not focus strong enough on the relationships observable on the market when making their investment decision in the context of the valuation of the IPO candidate. This might be especially the case when the investor community focuses a lot on fundamental valuations for industry specific reasons or when the IPO candidate has no good listed peers. In case investors are not focusing on the relative operating performance then this should be visible via a low R$^2$ of the
used regression analyses. It requires judgement and market knowledge of the shareholders of the IPO candidate to assess if, even despite a good multiple-to-operating metrics relationship being statistically observable on the market, investors will likely not focus on it when valuing the IPO candidate.

Furthermore, the model assumes that a majority of investors, which is large enough to determine the listing valuation of the IPO candidate, not only uses the peer analysis but actually uses exactly the relationships which the shareholders of the IPO candidate identified as relevant. In this context the importance of Section 2) of this article is to be again emphasized, which describes the importance and process of selecting an appropriate peer group as well as the right multiple-to-operating metrics relationships. Peer group selection mistakes should be usually visible also via a low R² of the regression analysis.

Depending on the level of conviction in the market implied relationship chosen for the analysis, in practice shareholders of the IPO candidate should consider analyzing and factoring into the model more than one multiple-to-operating metrics relationship. In such cases the obtained data would need to be aggregated in a sensible way, which then could be used as the best estimate of the future multiples. Given the above and to reduce the risk of error, this model should not be used in isolation. It is rather only one important data point in the IPO timing analysis. Other qualitative and quantitative tools should be used in connection with this model to determine a good IPO timing.

The operating performance to valuation metrics relationships might not be linear

The standard model assumes that the growth-to-valuation multiple relationship is linear on average across investors. This might not be true in all cases. For example, the multiple valuation curve could be capped or have different slopes between different intervals because certain limits are reached in terms of what investors are willing to pay, independently of the growth prospects. This risk should be smaller when the operating performance of the IPO candidate lies within the minimum/maximum boundaries of the peer group. Also more statistically advanced methods could be used rather than a simple regression to identify the right operating performance-to-valuation relationship curve.
Company and situation specific factors are ignored in the standard model

Even in a situation where the peer group is well selected and would really represent the peer group investors deem as relevant, it might nevertheless happen that investors would apply a company specific premium or discount to the IPO candidate due to company specific characteristics. This is especially likely to happen in case there is no close peer group and investors need to look at a broader peer universe. Furthermore, investors usually ask for a so-called IPO discount, i.e. a discount to peer trading as an incentive to buy into the IPO.13

Assuming that these discounts/premiums remain largely stable over time, they do not affect the IPO timing decision as they do not influence the relative attractiveness of the different IPO windows. They do affect the absolute expected shareholder value creation, though.

In practice, it requires good judgement and further analysis to determine the size of such potential premiums and discounts. The results can be factored in the model by applying premiums or discounts to obtained multiples from the regression analyses.

Rolling of multiples

The standard model takes valuation multiple-to-operating metrics relationships as of the date of the analysis and assumes that these relationships stay true also in the future. This means it assumes that today’s observed multiples will roll into the future as time passes. This might not be 100% the case, especially because the growth outlook for the peers might change over time as well. Therefore, the model might have a systematic bias to overestimate future valuations in growing industries and underestimate in declining industries. However, the closer the model-based inflection/optimal IPO timing point is to the date of the analysis, the less the rolling of multiples assumption reduces the value of the model output. In case the model suggests that the best IPO timing is far away, shareholders should regularly re-run the analysis as time passes.

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Stable market conditions

The standard model assumes stable market conditions in the future. This is unlikely to be the case given that stock markets move all the time. There is no ideal tool which could predict the general future market conditions. However, the model could be adjusted to reflect certain views on the general market conditions. For example, it could be assumed that current multiples will be $1x$ higher in one year given an expected improvement in the overall market. Should shareholders have no concrete view on the future market condition but would like to know what happens to the optimal IPO timing point assuming different future market conditions, shareholders could sensitize the key input parameters or directly the implied valuation multiples.

Business plan materializes and is recognized by investors

Key input parameters for the optimal IPO timing are derived from the IPO candidate’s business plan. There are two issues with that. First, the business plan needs to materialize in future quarters, i.e. the expected growth outlook performed at the date of the analysis should materialize at each point in time in the future as otherwise the estimated valuation levels will likely not materialize in the future. Therefore, a good and credible business plan is key for a sensible outcome of the model proposed in this paper.

The second issue is to convince investors to believe in the business plan of the IPO candidate. There are restrictions of what companies want and can say in the marketing phase of an IPO with regard to expected future performance of the business.

Improving the statistical robustness of the model and testing based on historical real data

The standard model has been developed to be of practical use for owners of private businesses. Therefore, the econometric model is kept as simple as possible using statistical tools readily available in standard office software packages and enjoying high acceptance levels in the financial community. The simplicity is a key element of this model being of use in practice.

The proposed model could be developed further for use in theoretical research. In such case further statistical elements would need to be added like for example t-statistics and/or p-values for the regression coefficients to assess if the slope of the regression analysis is statistically significant or not. Such an amended model for research purposes could for example try to test based on real data, if the predictions of the standard model proved to be true ex post.

Summary

The proposed model in this paper allows shareholders who consider IPOing their company to shed some light on the question what is the right IPO timing from a financial point of view. The model can provide an important additional data point for the IPO timing decision by building a bridge between a theoretically sound valuation/investment decision and an approach which is simple enough to be applicable in practice. The fundamental idea of the model is to use operating performance-to-valuation relationships which can be observed in a benchmarking and valuation analysis of peers and applying these relationships to the growth profile of the IPO candidate at different points in time. This helps to identify the value-maximizing combination of the company-specific multiple base and the market-implied valuation multiple.

The first key step to set up the model is that shareholders of an IPO candidate, either through investor or market knowledge and/or a trial-and-error approach, identify the key operating metrics which public market investors look at when making their relative valuation decision for a given peer group. Based on regression analyses, operating performance to valuation multiple relationships are identified for the peer group. In order to identify a good IPO timing from a financial perspective, the IPO candidate's operating performance trajectory at different points in time is translated into expected valuation multiples for the IPO candidate at these points in time based on the operating performance to valuation regression lines of the peer group. Applying these multiples to the respective absolute values of the IPO candidate's operating metrics allows obtaining valuations of the IPO candidate at different points in time. Discounting the implied Equity Value of these valuations allows the attractiveness of various IPO windows.

The key value-added of the model is to shed light on the multiple-to-multiple base trade-off between waiting for a higher multiple base on the one hand, and on the other hand, changing valuation multiples due to changing growth prospects over time. The model combines key internal and external factors of the IPO decision under the objective of shareholder value creation.
From a theoretical point of view, the model identifies market inefficiencies (in case there are any) and provides guidelines how to use them. It does so by checking if the theoretically predicted neutrality of the timing decision on the Equity Value actually holds in practice and, if not, it shows at which point in time the Equity Value is maximized. For example, the model could show that the market will likely not fully appreciate the near-term growth potential of an IPO candidate via an appropriately high implied multiple. In such case the model would show that the shareholders are better off waiting with the IPO and grow the multiple base until a point in time where the market/investors will fairly value the growth prospects of the IPO candidate.

The model has its limitations and should only be used and interpreted taking into account other analyses and data points. The most crucial limitation is the assumption that investors will actually base their investment decision on the observed operating performance to valuation relationships of peers. As investors usually use both, peer valuation and fundamental valuation, the proposed model could be either adjusted with certain premium/discount assumption vs. peers and/or only interpreted as an indicator of the relative attractiveness of certain IPO windows.

References
