PERACS HEC PARIS PALLADIO Partners

Value Creation for secondary fund investors

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Executive Summary

The market of secondary private equity fund interests has evolved to sizable volumes. In this market, sellers of fund positions ("secondaries") seek liquidity and are often willing to sell their interest at a discount to net asset value ("NAV"). Investors in secondaries provide liquidity and in exchange enjoy interesting risk-return features as compared to initial commitments to funds ("primaries"). In this paper we investigate some of these specific risk-return features. The paper is structured as follows: Sections 1 and 2 describe the methodology and the data sample. Section 3.1 analyzes the J-curve features of secondaries and Section 3.2 shows that secondaries provide early distributions. In Section 3.3 we investigate the impact of fund quality on returns and in Section 3.4 we describe the J-curve effects for secondaries that are bought with a discount. In Section 4 we propose a new market benchmark for secondary fund of funds.

1 Opportunities for value creation in secondary investments

Secondary investors have four ways to influence the level of value creation:

1. Market timing (when exactly to buy secondary interests)
2. Fund selection (i.e. investing in better performing funds)
3. Discount negotiation (i.e. negotiating a discount to the net asset value at the time of investment)
4. Fund life cycle timing (i.e. selecting funds at an appropriate timing within their life cycle)

The discount reflects the difference between the NAV and the price being paid for a secondary fund interest. In some instances the price may also be a premium to NAV, even though such cases seem to be rare in practice.

In an efficient market the discount that can be negotiated will depend on the quality of the fund. Given that the secondary market is a private market we do not have full information on the discounts that have actually been paid in the past. Therefore we cannot model the linkage between the discount and the quality of the fund with precision. Instead we analyze those factors separately.

The discount will also depend on the strategy of the fund interests being sold; smaller funds are usually sold at a larger discount and riskier strategies (such as venture capital) also demand a larger discount.

Here we measure the quality of a fund in terms of its quartile ranking which is the most common measure in the industry. Regarding fund life cycle we differentiate three age categories of secondaries:

- Early secondaries (funds aged up to 3 years)[1]
- Mid secondaries (funds aged over 3 years but less than 6 years)
- Late secondaries (funds aged over 6 years)

Early secondaries are usually still in their investment period and therefore exhibit some features more similar to primaries.

[1] The age of a fund is determined relative to its vintage year.

2 Methodology and data sample

The project draws on performance data on a sample of 718 primary buyout funds from vintages 1980 to 2013 provided by preqin. This dataset contains detailed data on cash flows and NAVs over time for these funds. Based on this data, we can simulate the performance of a hypothetical secondary investor buying a given subset of these funds at a given age and at a given price (relative to NAV) and then compare the performance of these investments to a primary commitment to the same sample of funds.

To avoid the problems with the traditional IRR measure[2] which leads to a distortion and often an overstatement of performance for secondary funds, we applied the improved PERACS rate of return as our measure of annual returns (It is defined as: PERACS Rate of Return = (Return Multiple ^(1/Duration in years))-1)[3] which is used in the following whenever we speak of return.

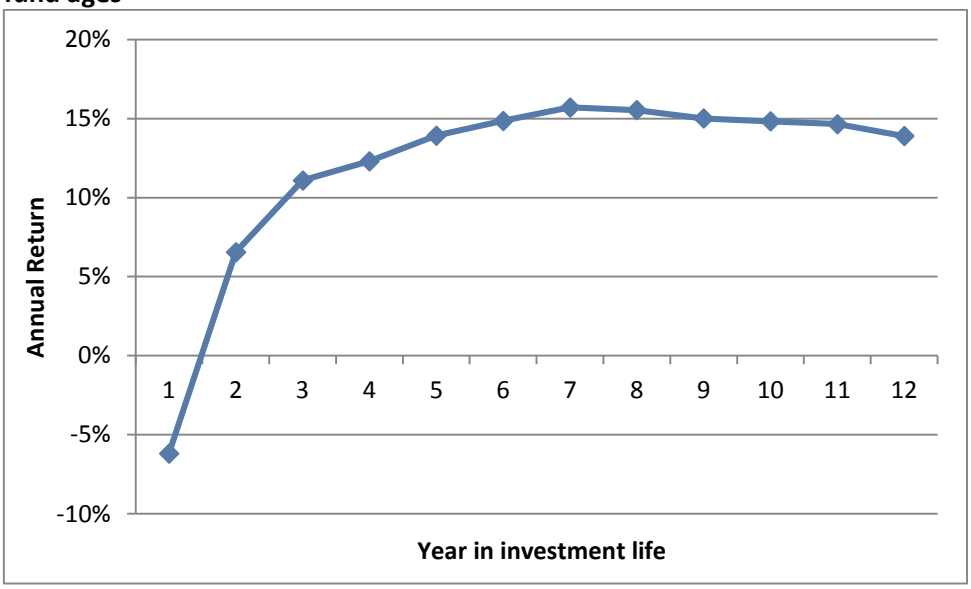
3 Features of secondary investments

In this Section we investigate the most important features of secondary investments and compare them to primary investments.

3.1 Secondaries exhibit higher returns than primaries even before discounts

The average primary fund performance in our sample is 11.6%. This number however only captures the return measured at the end of the life of these funds. It is well known that the returns evolve over the life of the fund, following a so called J-curve pattern which is depicted for our sample in Exhibit 1.

Exhibit 1[4] Annualized Returns (PRR) ("J-Curve") of a typical primary fund measured at different fund ages



The shape of this J-curve already suggests intuitively that it should make sense to invest into a fund not at inception but rather a certain time thereafter, as this would avoid the early years with low

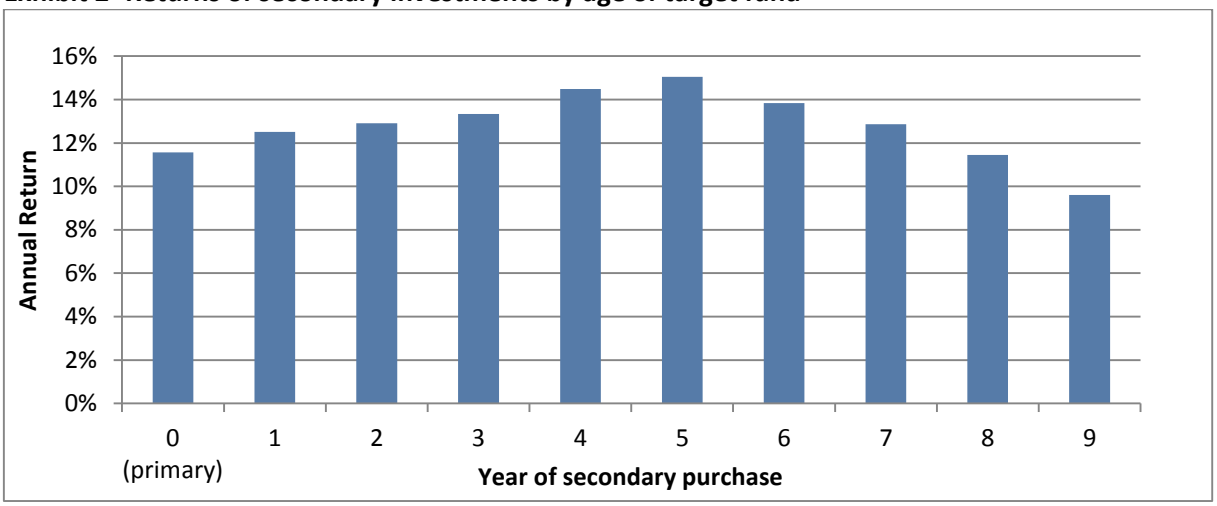
[2] See, for example Phalippou, Ludovic, The Hazards of Using IRR to Measure Performance: The Case of Private Equity. Available at SSRN: http://ssrn.com/abstract=1111796 or http://dx.doi.org/10.2139/ssrn.1111796

[3] For further information, please see www.PERACS.COM
or watch: http://www.youtube.com/watch?v=7Zbz-YTGL-o

[4] In this exhibit we have only considered funds within the sample that are at least 10 years old; i.e. vintage years up to 2003; we have further normalized returns slightly to reflect a 11.6% terminal performance.

annualized performance. Exhibit 2 shows the returns of a simulated secondary investment (measured at the end of the fund's life) assuming that the secondary interest is purchased by age, i.e. at different points in the life of the primary fund without any discount (i.e. at NAV):

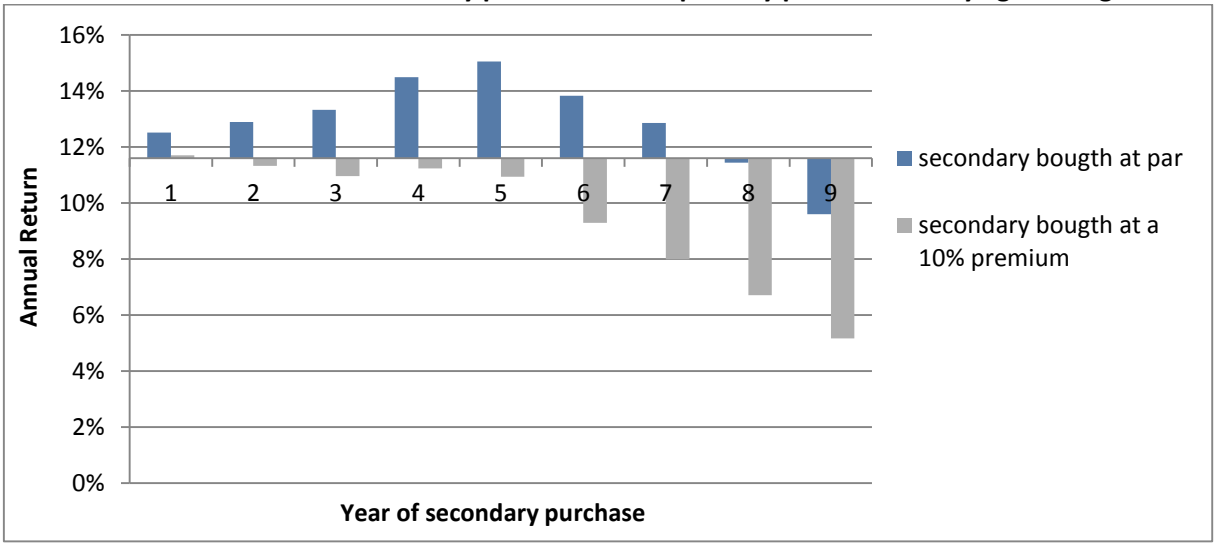
Exhibit 2[5] Returns of secondary investments by age of target fund



The chart in Exhibit 2 confirms this intuition, as the best return can be achieved when investing in mid secondaries; i.e. in years four to six. Indeed, the outperformance of early and mid secondaries versus primaries is a corollary to the J-curve effect in Exhibit 1. The moderate performance of late secondaries is also implicit in Exhibit 1 given the decreasing returns after year six. We have already described elsewhere that the best deals tend to be exited after three to five years which may be motivated by fund raising cycles.[6]

Given the outperformance of secondaries versus primaries we investigated the equivalent in terms of discount/premium. Exhibit 3 shows that fund interests bought at a 10% premium enjoy similar returns as primaries. For the reasons described above this only holds true for early and mid secondaries but not for late secondaries.

Exhibit 3[7] The differential of secondary performance to primary performance by age of target fund



[5] In this exhibit we show the data of all vintage years combined. Furthermore no discounts are assumed.

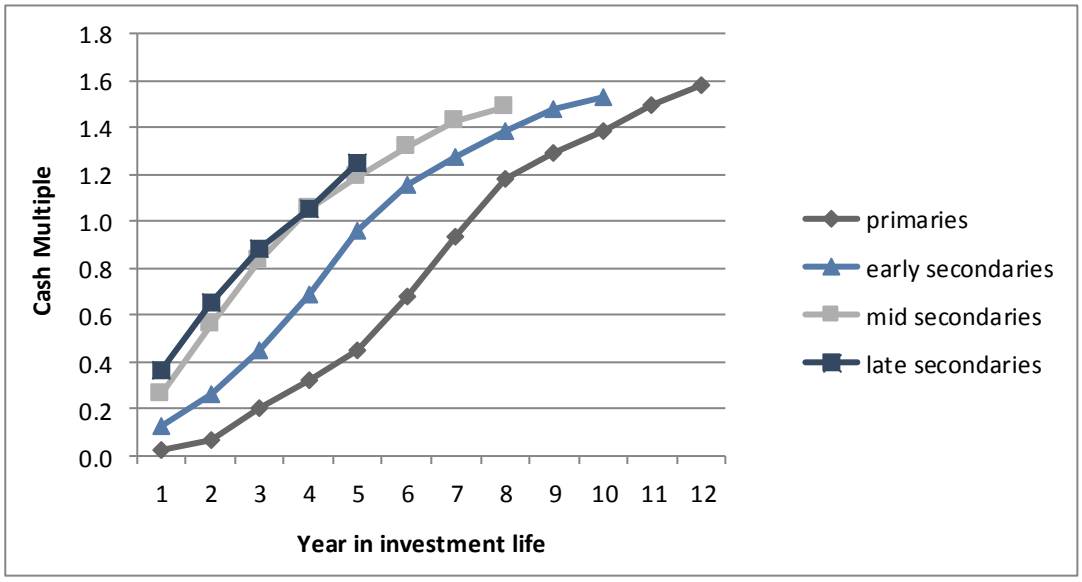
[6] Gottschalg, Kreuter, Quantitative assessment of private equity risk, in: Private Equity Technical Journal, Issue 2, June 2013, p. 25-29.

[7] In this exhibit we show the data of all vintage years combined.

3.2 Secondaries enjoy early distributions

The J-curve has two implications that each has its own consequences for investors. We already described the impact on annual returns in the previous section. These returns include both realized and unrealized returns; i.e. cash distributions and increase in NAV. Given that investor's focus is more on cash distributions we now have a closer look at those. Primary fund investments show very little cash distributions in the early years. On the other hand, the mid and late secondaries in our sample have already distributed over 50% of paid in capital within the first two years after investment.[8] As can be seen in Exhibit 4 the distributions of early secondaries are just in the middle between primaries and mid/late secondaries. Furthermore, late secondaries have somewhat higher distributions than mid secondaries only in the first two years. This again shows that late secondaries are not more attractive than mid secondaries.

Exhibit 4[9] Cash-on-Cash Multiple (DPI) of primaries and secondaries measured at different fund ages



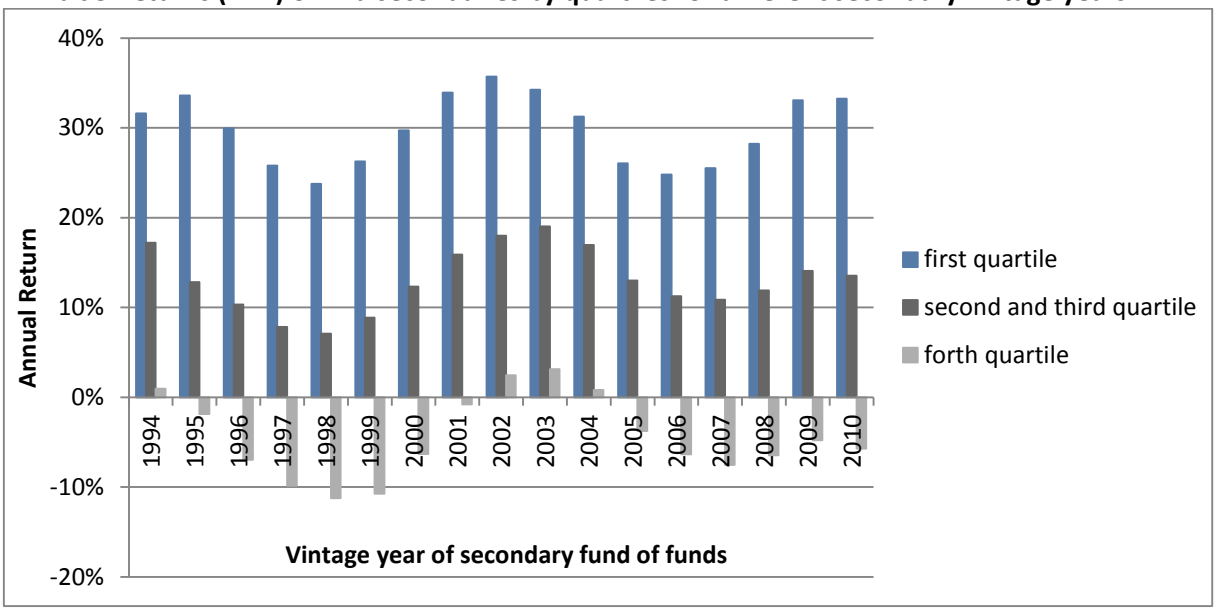
3.3 Fund selection is very important for secondaries

For the time being we simply assume that all investments occur at NAV, i.e. we ignore the impact of discounts. It is interesting to assess how much performance varies when we model a secondary investor's differential ability to identify particularly high performing funds. In doing so, we simulate the annualized performance of a secondary fund of funds, raised in a given vintage year and investing equally over a four-year investment period. For mid-secondary funds, the average spread between a secondary investor who exclusively acquires actual first quartile funds (based on the end-of-life performance of the primary funds) versus funds from the second or third quartile amounts to over 16%. The average spread between the latter and the forth quartile even exceeds 17%. These spreads are persistent over various cycles (cf. Exhibit 5). This shows that the potential for value creation through fund selection is substantial.

[8] This does not involve any discounts. Including discounts distributions would even be higher.

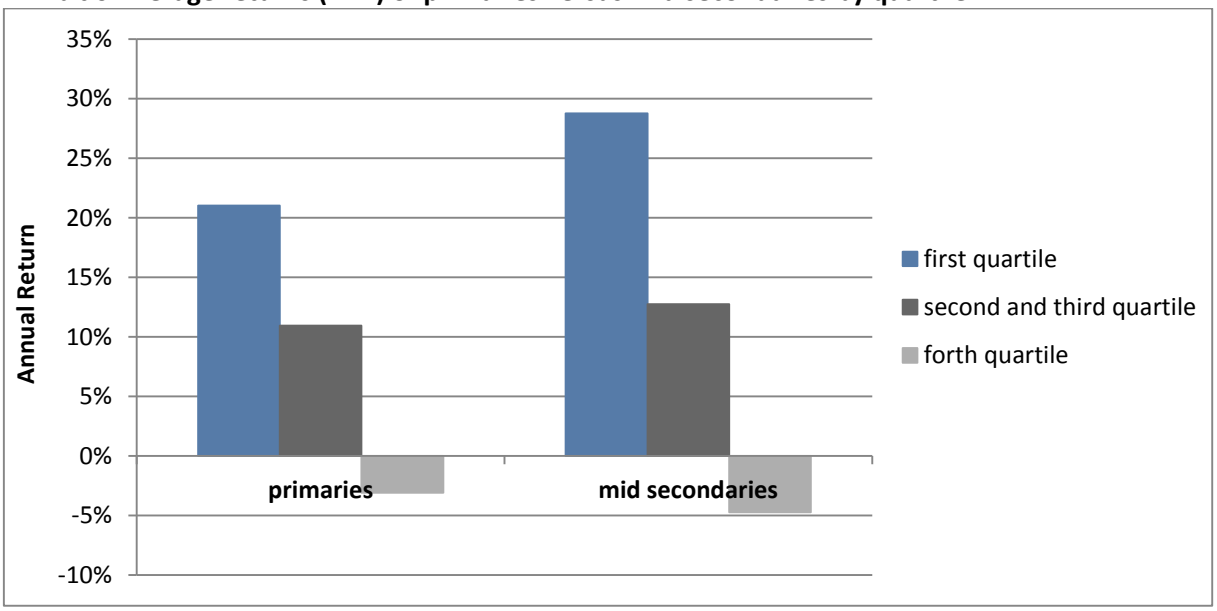
[9] In this exhibit we only consider vintage years pre 2001 (given that for a fund with vintage year 2001 being bought as a late secondary say at age 7 or 8 we would only have 2 or 3 years of history after acquisition).

Exhibit 5 Returns (PRR) of mid secondaries by quartiles for different secondary vintage years



The return spreads of secondaries are a lot wider than those of primaries as can be seen in Exhibit 6. The main reason for this is that secondaries have shorter holding periods and most of the value is generated at the time of the exit.

Exhibit 6 Average returns (PRR) of primaries versus mid secondaries by quartile[10]



In practice, the quality of the underlying primary funds will at least partially be reflected in the price for secondary fund stakes, always as a function of the NAV at time of purchase. To analyze the impact of this effect on the aforementioned results, we now consider discounts and premiums to the entry prices at which our simulated secondary fund of funds can invest. Given that lower quality funds can usually be bought at deeper discounts in the secondary market, this brings us closer to a real-world setting.

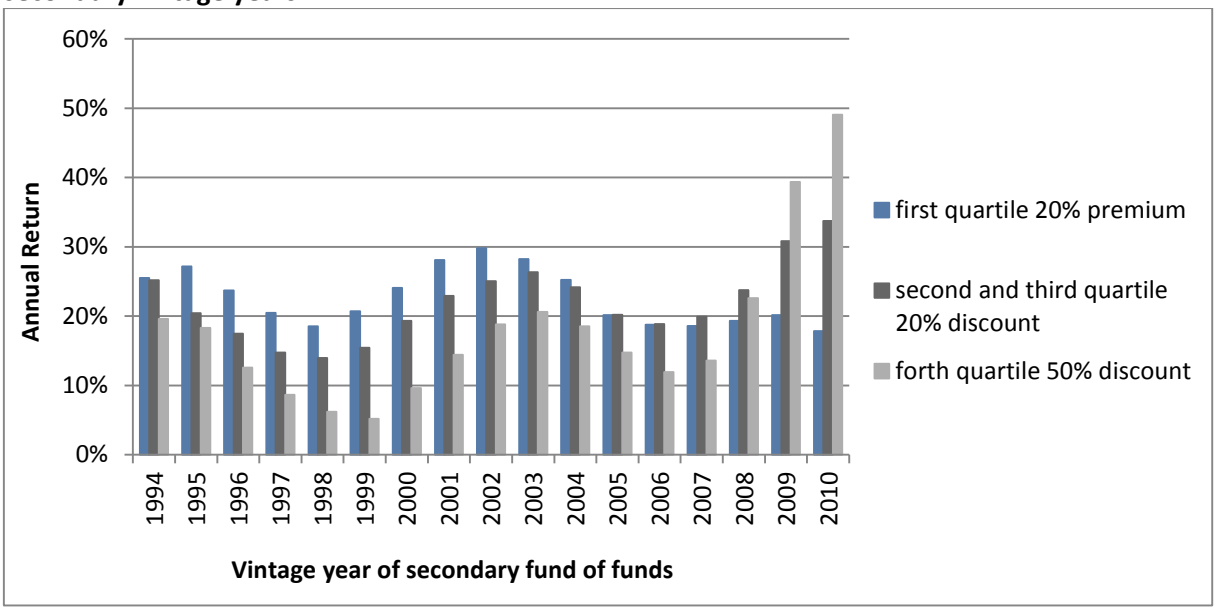
[10] The quartile returns show the average of quartile vintage year performance data up to 2008. Younger funds have been omitted because of the J-curve. Some earlier vintage years with too few data points have also been omitted.

In Exhibit 7 we compare the performances of

- top quartile funds that have been bought at a 20% premium to NAV
- second and third quartile funds that have been bought with a 20% discount to NAV
- bottom quartile funds that have been bought at a 50% to NAV

Exhibit 7 shows that investing in top quartile fund even at a 20% premium to NAV is still slightly superior to investing in second and third quartile funds with a 20% discount; purchasing bottom quartile fund with 50% discount is worse than both other alternatives. The picture only reverses in the most recent years where the discount/premium effect outweights the fund quality effect. The latter will be analyzed in more detail in the following section.

Exhibit 7 Returns of mid secondaries with quality-dependent price discounts for different secondary vintage years



3.4 Secondary investments yield distorted J-curves

Even if a secondary investor acquires a primary fund stake at a discount or premium relative to its NAV at the time, the investor will usually immediately after the acquisition write the value of this fund up/down to par. The resulting effect of discount/premium investing can have a substantial impact on the annualized performance of the secondary fund shortly after the investment, but will naturally vanish over time.

As before we model a secondary investor's differential ability to identify particularly high performing funds based on a simulation of the annualized performance of a secondary fund investing equally over a four-year investment period (in all primary fund vintages pre 2005) over the life of the secondary fund. We consider different quartiles and start by applying the same discount/premium to all funds. We first assume a 30% discount. Exhibits 8 and 9 show that this yields an "inverted J-Curve": there are abnormally high annualized returns for the first three years, until the effect vanishes. For early secondaries (cf. Exhibit 9), this effect is similar but a little less pronounced than for mid secondaries since early secondaries are still in the investment phase and hence new investments are added to the portfolio which dilutes the discount effect. After eight years bottom quartile funds merely yield 2%; so the positive short term effect of the discount has completely vanished by then.

As we can see from these results, the high performance of bottom-quartile secondary funds from recent vintage years bought at a steep discount in Exhibit 7 above are not indicative of the true long-

term performance of these funds, but merely a reflection of written-up discounts to NAV for recently acquired primary fund stakes.

Exhibit 8 Annualized Returns (PRR) ("J-Curve") of mid secondaries by fund quality (assuming a 30% discount)[11]

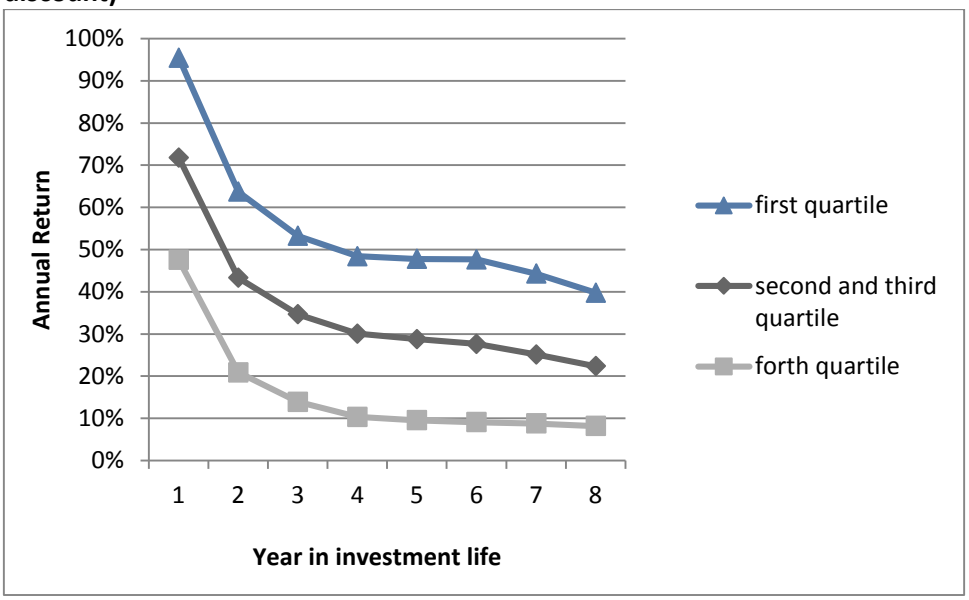
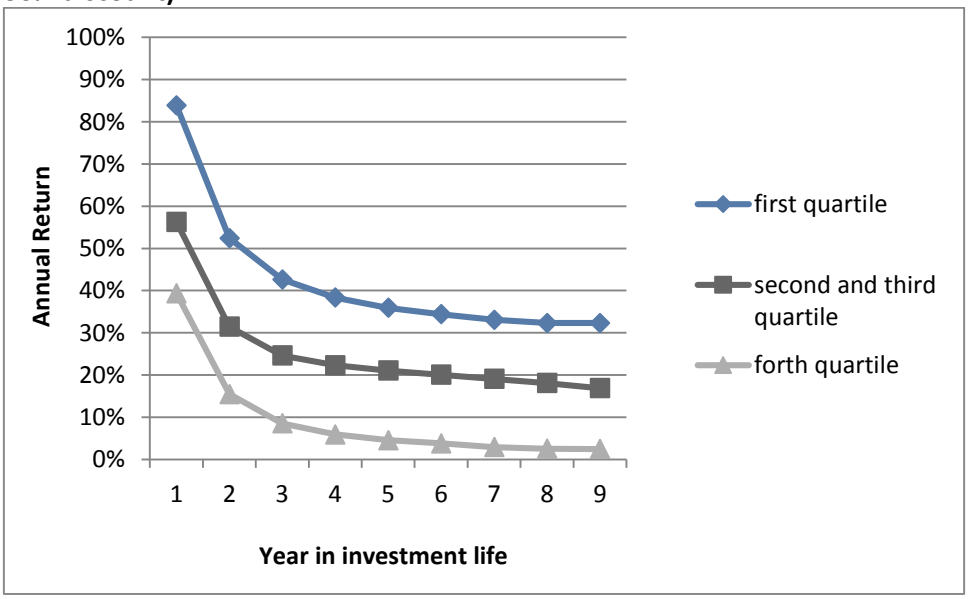


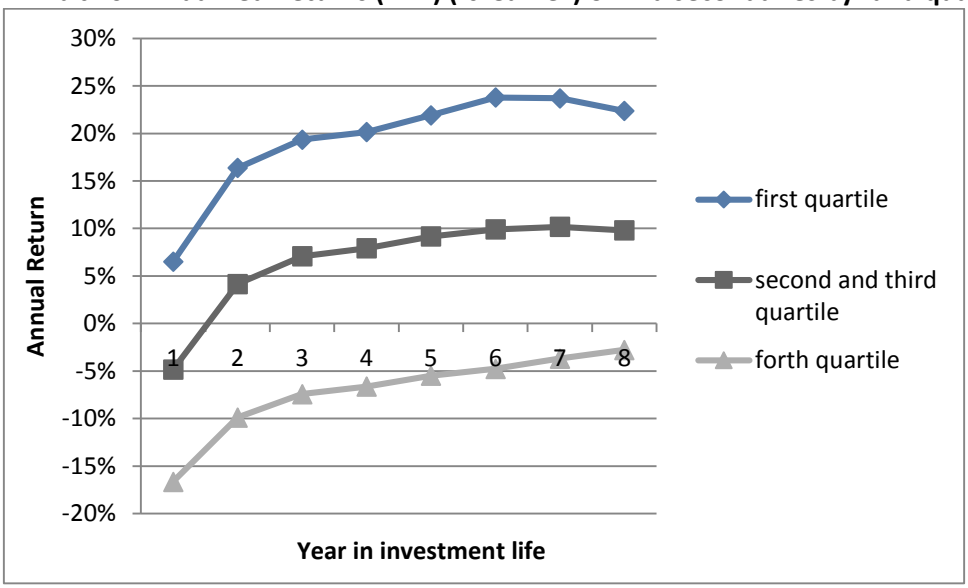
Exhibit 9 Annualized Returns (PRR) ("J-Curve") of early secondaries by fund quality (assuming a 30% discount)[12]



Now we consider the opposite effect, i.e. we simulate the, admittedly far less frequent, case of a secondary investment in mid secondaries at a 20% premium (cf. Exhibit 10). Investing at a premium leads to depressed performance early on. From year three, annualized performance stabilizes rapidly. Even for an average fund in the second or third quartile, the performance after three years exceeds 7% and finally stabilizes at about 10%. Top quartile funds do not show any negative portion of the J-curve but are already in positive territory in the first year.

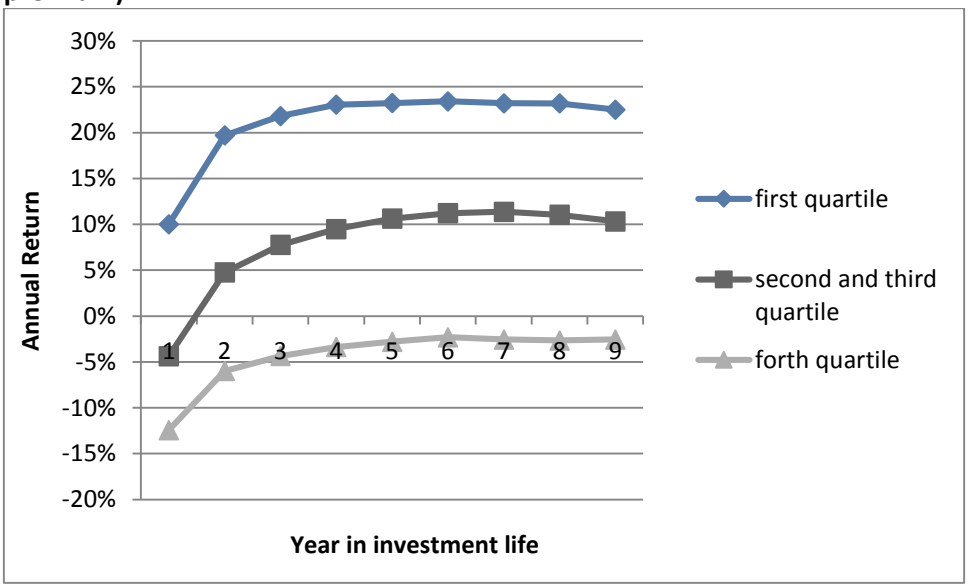
[11] All statistics in this section cover funds with vintage year up to 2004.
[12] All statistics in this section cover funds with vintage year up to 2004.

Exhibit 10 Annualized Returns (PRR) ("J-Curve") of mid secondaries by fund quality (20% premium)



Replicating the previous analysis for early secondaries shows that investing in these at a premium yields a flatter J-curve. Exhibit 11 shows that the final performance is already reached after year two or three.

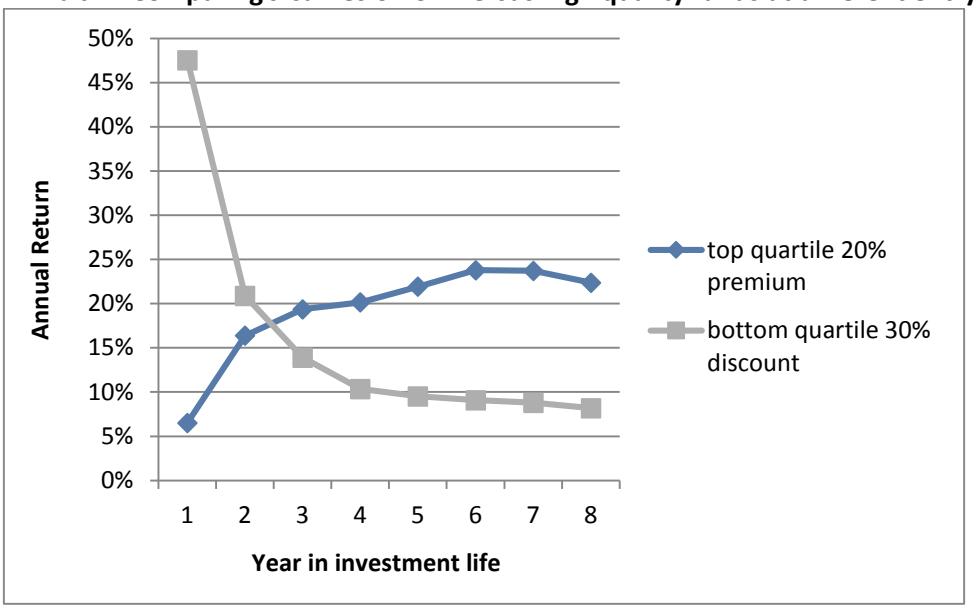
Exhibit 11 Annualized Returns (PRR) ("J-Curve") of early secondaries by fund quality (20% premium)



In reality, discounts and fund quality are likely to be linked due to market forces. Exhibit 12 contrasts the J-curve patterns of two hypothetical cases: a top quartile fund bought at a 20% premium to that of a bottom quartile fund bought at 30% discount.

In the long run, the return differential is over 14% in favor of the top quartile fund. But in the short term the discount effect is more prevalent. Investing in low quality funds at a deep discount therefore offers certain window dressing opportunities. This finding suggests that depending of an investor's preference for short-term vs. long-term performance, different types of secondary investments may be most attractive.

Exhibit 12 Comparing J-curves of low versus high quality funds at different entry prices



4 Benchmarking of secondary fund of funds

The methodology developed here can be used to design an insightful benchmark for secondary fund of funds as well as inhouse secondary programs and managed accounts. The intuition is to compare real-world secondary funds to a passive investment in the market. As a market benchmark we propose simulated secondary investments into our sample of primary funds with the following generic features:

- Proportional investment over an investment period of four years
- Proportional investment in all available primary funds that are between three and seven years old at that point in time
- Investment at NAV (i.e. no discounts applied)
- Only fees charged by primary GPs are considered

Clearly, in the real world, these assumptions are unlikely to hold true. The average secondary transaction will typically be priced at a discount to NAV – and one would also assume that not all primary funds are "for sale" at any given point of time, but that the accessible sample of underlying funds is more likely to be downward biased in terms of their performance, as investors will be less likely to see top quartiles funds in the secondary market. The exact extent to which these two effects are present in the actual secondary market is difficult to know with certainty. Importantly, however, both effects work in opposite directions, as the former is likely allow greater return than what we assume in our simulation, while the latter will tend to lower secondary returns relative to our assumptions. While we cannot be sure that the two effects will cancel one another out completely, it still gives us some confidence that the benchmark that results from our assumptions and methodology is still representative for the performance of investors in secondaries.[13]

Applying our method to simulate secondary fund performance for different vintage years, always assuming a target age of primary funds between three and seven years old, we obtain a performance benchmark by secondary vintage year as shown in Exhibit 13 for annual returns (PRR) and in Exhibit 14 for the total value multiple (i.e. TVPI or MOIC).

[13] Another point to keep in mind is that we explicitly assume that our initial sample of 718 primary buyout funds is indeed representative in terms of their performance across different vintage years.

Exhibit 13 Secondary fund of funds benchmark: Annualised return (PRR)[14]

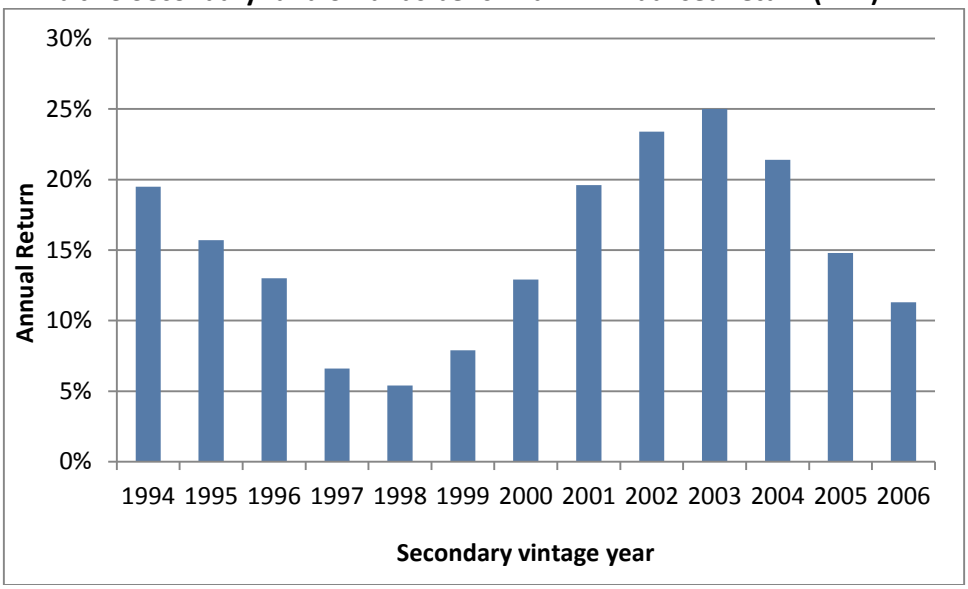
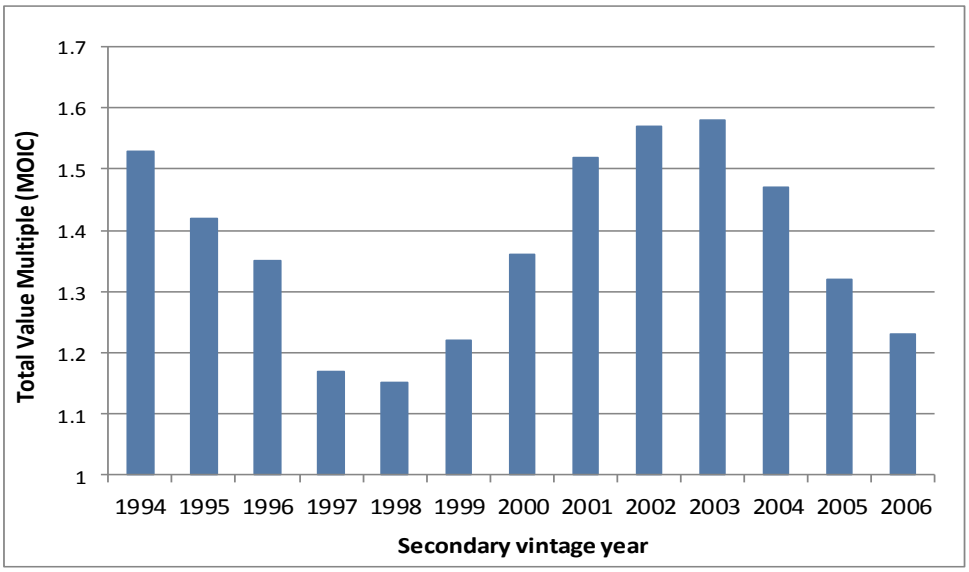


Exhibit 14 Secondary fund of funds benchmark: Total value multiple (TVPI or MOIC)



Notwithstanding the limitations of our methodology, it is highly interesting to compare a real word secondary fund of funds to our benchmark. Each real world fund has, compared to our assumptions, the following options to create further value through:

- timing of investments over investment period of the fund of funds program
- fund selection in terms of age and quality
- discount negotiation

On the other hand secondary fund of funds charge additional fees. One could hence look at the performance of real-world secondary funds and compare it to our benchmark.

Let's now take an example: According to the preqin performance benchmark for secondary funds worldwide (accessed on Sept 3, 2013), a top quartile actual secondary funds from the vintage year

[14] In Exhibits 13 and 14, the investment strategy is as described tat the beginning of this section (i.e. corresponds to an investment "in the "market" over 4 years).

2005 returned more than 1.43x in terms of TVPI, and the median of those funds reports a TVIPI of 1.26x. We compare this data to the Synthetic Secondary Benchmark, which reports an average TVPI of 1.32x for this vintage year based on our data. This comparison leads to two important insights. First we gain confidence that our methodology indeed leads to benchmark values that are the same area of magnitude as the performance distribution for real-world secondary funds. Secondly, we can see immediately that while some real-world secondary funds seem to be generating great value based on their strategy, others do not seem to be able to justify their fees.

As compared to the somewhat limited number of secondary fund of funds that is usually used for peer group benchmarking our proposed benchmark covers a much broader spectrum in the market and is also less vulnerable to systematic market distortions that may exists in the secondary fund of funds market.

5 Conclusion

Our results show that secondary investments exhibit some features that make them highly attractive to LPs. However it is important as an LP to keep a few things in mind: First, one must not be "blinded" by the artificially high early annual performance of secondary funds/programs that buy primary funds at steep discounts. Second, even at steep discounts secondary investors that pick up the bottom quartile of funds are likely to be disappointed in the long run and finally we see that while some real-world secondary funds seem to be generating great value based on their strategy, others do not seem to be able to justify their fees. One may hope that the availability of new secondary benchmarks that follow the proprietary methodology we developed will enable LPs to better separate the former from the latter.

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