Pricing and Performance of Income Deposit Securities

Alex Blagoev and Rico von Wyss*

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Abstract

In 2003, Income Deposit Securities (IDSs) were introduced in the U.S. IDSs are exchange-traded units, essentially comprised of two separable components: a common share and a subordinated note. We investigate the valuation of the IDSs at IPO and analyze the performance in the secondary market. Based on the complete universe of IDS companies we find that the IDSs were fairly valued at IPO on average. By performing a dynamic return-based style analysis, we replicate the returns of these hybrid securities and determine whether they are more equity- or bond-like by three benchmark indices. The resulting style weights vary considerably. For most companies, the equity component dominates IDS returns.

Keywords: Income Deposit Security, IDS, valuation, performance

EFM Classification Codes:140, 330

* Alex Blagoev works for Credit Suisse, Investment Banking Division in Zürich. Rico von Wyss (contact author) is Senior Lecturer at the Swiss Institute of Banking and Finance of the University of St. Gallen. Contact: Rosenbergstrasse 52, CH-9000 St. Gallen, Switzerland. Tel: +4171-224-7003, email: rico@vonwyss.ch. The authors thank Laura Hodges Taylor (Goodwin Procter LLP), Stephen Pincus, Bill Gorman (both Goodmans LLP), Earl Rotman, James Merkur (both Genuity Capital Markets), Richard Willoughby (Torys LLP), and Joshua Goldstein (Skadden LLP) for their helpful inputs.

1 Introduction

In December 2003, amid low interest rates and near to the ground IPO activity, a new asset class praised as one of the latest innovations on Wall Street emerged in the U.S. market: an American catering and sports arena concessions company issued a new security type labeled 'Income Deposit Security' (IDS). Income Deposit Securities (IDSs) were expected to build up a new market by delivering above-market yields in the 10-12% range. Developed by a Canadian investment bank, the IDSs were also thought to be an alternative to conventional IPOs and were supposed to serve as a new vehicle for private equity firms to take stable and high cash-flow generating businesses public. But already during the second half of 2004, less than one year after the first IDS IPO, newspapers (e.g. Wiggins, 2004) reported that companies which intended to issue IDSs were increasingly abandoning the complicated structure.

An Income Deposit Security, which is also known under different names such as Enhanced Income Security (EIS), Income Participating Security (IPS), Enhanced Yield Security (EYS) or Income Unit (IU), is an exchange-traded hybrid security which consists of both, a company's common stock and an unsecured subordinated note. The uniqueness of this product is that a common stock and a subordinated note are combined in the same publicly tradable unit. Based on its underlyings, the security combines the benefits of steady interest payments of bonds and a possible appreciation of the equity part through the growth of the underlying business. Also, through the ownership of an IDS unit, the investor is stockholder and bondholder of the company at the same time. While IDS units are listed on an exchange, the underlying securities may or may not. Also, The IDSs may be separated into their distinct components, traded separately and then be recombined into units again. So far, twelve American companies have issued IDSs, at least 16 more intended to do so in the U.S. but later abandoned their plans.

IDSs are designed to distribute most of a company's free cash flows to investors in form of interest payments on the subordinated notes and dividend payments on the common stock. Because the subordinated notes have a lower priority in case of liquidation than other debt instruments of the company, they are riskier and, therefore, pay a higher coupon. Together with the dividend payments from the common stock, the IDSs provide a comparably high yield. Hence, the ability to produce stable and predictable free cash flows is of utmost importance for the firms issuing IDSs. Companies with stable businesses in mature industries that exhibit modest growth potential and limited capital expenditures needs are therefore best suited for the IDS structure.

From a company perspective, the IDS structure maximizes the distribution of free cash flow to the investor in a tax efficient way as a significant part of the free cash flow of the company is distributed as deductible interest.

Due to the specific tax characteristics of the securities, the IDS structure has only been seen in North America so far.[1] Based on the subordinated nature of the debt component, the principal accounting and tax related question is, whether the IDS units are treated as separate debt and equity components for U.S. income tax purposes. Following this question, there is a debate, whether the payments on the subordinated notes should be classified as tax deductible interest payments or ordinary dividend payments. If the subordinated notes are characterized as debt, the issuing company can deduct the interest payments on the debt portion of the IDSs against its operating income and can, therefore, realize a tax shield. If not, the interest payments are treated as dividends and as a result of that, higher taxable income leads to higher income tax which in turn reduces distributable cash flow.

The existing literature on IDSs is very limited and focused on the tax related discussion. Peng (2009) investigates statistical characteristics of the IDSs and discusses reasons why the IDS market in the U.S. is not prospering. This present article aims to complement and extend Peng's work by making two contributions to the existing literature. First, we analyze the initial valuation of the IDS units to assess whether the securities were fairly priced at IPO. To derive a fair value estimate of the IDS units, we perform an ex-post discounted cash flow valuation and a comparable companies analysis for each IDS company. The valuations are based on analyst forecasts presented in initiating coverage reports. We evaluate the fair valuation of the IDS units by comparing the combined results from the two valuation approaches to the IPO price of the IDS units.

Second, we investigate the performance of the IDS units in the secondary market using a dynamic return-based style analysis. The objective of the style analysis is to replicate the returns of each IDS by passive benchmarks from a set of known indices against which we compare the performance of the IDSs. Using this approach, we achieve a statement regarding the return behavior of these hybrid securities.

Although the tax treatment of the IDSs is key for the IDS structure to work, the present article does not focus on tax issues.

[1] In Europe, Norwegian directories business Findexa issued a high yield dividend share in 2004 which has similarities to IDSs. However, Findexa only offered equity to investors and the dividend was comprised of dividends from the operating company and interest payments from an inter-company loan. For a possible IDS structure for Europe, please refer to Scoville and Stewart (2004).

The article is organized as follows: Section 2 explains the origination and nature of the IDS and assesses the hybrid security from both, the investor's and the issuer's perspective. It also offers an overview of the IDS transactions executed so far and discusses possible reasons why the IDS market is deteriorating. Section 3 analyses the valuation of IDSs at IPO while Section 4 examines the performance in the secondary market. Section 5 concludes.

2 Description of Income Deposit Securities

2.1 Origin and Development

The IDS structure is a derivation from the Canadian income trusts (CITs). An income trust is a publicly traded investment vehicle that invests in an operating company and pays out consistently high cash flows to its investors on a monthly or quarterly basis in a tax efficient way. According to Kolz (2004), in the U.S. only Master Limited Partnerships (MLPs)[2] and Real Estate Investment Trusts (REITs) offered similar advantages. However, the income trust structure with its corresponding tax benefits was only limited to companies in certain industries.

In 2002, CIBC together with law firms tried to adapt the income trust model for U.S. firms which were seeking capital from U.S. investors. After more than one year of work and dialog with the SEC as well as several audit firms, the bankers managed to develop a new product which they named Income Deposit Security.[3] As opposed to an income trust unit, an income deposit security is a hybrid security where a common stock and a subordinated note are combined together as a single tradable unit. Due to the amount of debt included in the transaction, an IDS IPO can be described as a public leveraged buyout according to Willoughby, Kau, Gartner & Cardarelli (2004).

With the possibility of transferring profits to investors without paying income tax at the corporate level, the IDS structure serves the same purpose as the income trusts but without involving the trust layer. Interest and dividend payments are made directly to the holders of the IDS units without an interposed trust between the issuer and the investor. Additionally, the two products are comparable in terms of the underlying businesses since they are best suited for mature, slow-growing businesses with a constant cash flow.

[2] MLPs are limited partnerships that are publicly traded on an U.S. securities exchange. They combine the tax benefits of a limited partnership (avoidance of the corporate income tax) with the liquidity of publicly traded securities.

[3] For a review of the origination process and the parties involved see Kolz (2004).

On December 4, 2003, the first company in the U.S. went public through a US$ 252 million IPO of IDSs. Following the first success of the product, other investment banks began to market the product under different names such as Enhanced Income Securities (EISs) or Income Participating Securities (IPSs) which have the same characteristics in general.[4] The IDSs pipeline thereafter grew, but because of the complexity and the tax related uncertainties of the product, only a few IDS companies made it to the IPO according to Kolz (2004).

2.2 IDS Investors and Issuers

Buyers of IDSs are usually retail as well as institutional investors who seek large and regular cash flows from their investments. The major advantage of the combined security is that the underlying debt security provides a floor level of either monthly or quarterly interest payments to the investor. Apart from the comparably secure interest payments, the common stock component allows for participation in the growth of the company. If the issuer remains in good financial health and maintains to pay out substantial dividends, investors can achieve a high yield. The blended return of dividends and interest payments is especially attractive in a low interest rate environment. This might explain why the IDSs were launched in 2003 and reappeared in investment recommendations at the beginning of 2009 when interest rates were near historical lows and equity markets also performed poorly. However, as the dividend payments are not guaranteed, performance volatility has to be taken into consideration.

An IDS holder is the beneficial owner of the common stock and the senior subordinated note represented by the IDSs and, therefore, has exactly the same rights as a beneficial owner of separately held common stock and senior subordinated notes. Investors are free to sell or recombine the components of an IDS at their own discretion. Relating to the hybrid structure of an IDS, Peng (2009) emphasizes that the fact that an IDS holder is stock- as well as bondholder of the company contradicts traditional finance theory. By referring to Fama and Jensen (1983), he states that financial claims on the company should only be separated in riskier residual claims (i.e. equity) and low-risk debt capital with the benefit that only the bondholders need to monitor the shareholders with regards to agency problems.

Indeed, since an IDS investor is lender and shareholder at the same time, this leads to the theoretical question how an IDS investor would act when the issuer gets into a position where

[4] IDS is the term used by CIBC World Markets, whereas RBC Capital Markets named the unit EIS. Both are primarily used for U.S. domestic offerings. IPSs in turn are used by U.S. businesses looking to raise capital only in Canada (trademark of BMO Nesbitt Burns). For this purpose, a Canadian corporation is founded which becomes the parent of the U.S. company. Together with a Nova Scotia unlimited liability company, the parent issues a combination of equity and subordinated notes which together form an IPS (Koval & Scarlett, 2005). For the remainder of the article, these expressions are used interchangeably.

it cannot service the debt anymore. A creditor would probably force the company into bankruptcy to secure at least part of the debt outstanding. But since an IDS investor is a shareholder at the same time, this would reduce the share price and, therefore, hurt the investor's equity position. However, the existence of non-IDS bachelor debt[5] with the same class of debt as the IDS debt is likely to force the IDS holders to insist on their creditor rights like the other debt holders since they do not want to leave the other creditors with the proceeds of the bankruptcy assets according to McKim (2006) and Doherty (2004). The problem described is also known as the '*proportionality of ownership'* issue. It states that when an IDS holder roughly holds the same value of debt and equity in the issuing company, meaning that the ratio of equity and debt ownership in a company is close to 1:1, the IDS holder has a reduced incentive to enforce his creditor rights, which makes debt more equity-like. As the ratio between debt and equity in some IDS offering is approximately 1:1 this is a central question. Therefore, disproportionality is better than proportionality when it comes to decide whether a particular security is characterized as debt or equity according to Karras, Eisenberg & Powell (2004).

Irrespective of the business and industry risk of the issuer, there are several risk factors to consider: for the equity part, as it is the case for conventional common stock, dividends are not cumulative and payments are at the discretion of the board of directors. Therefore, the dividend policy can be modified or revoked at any time and dividend payments can be suspended if earnings dip. There can also be contractual restrictions on the payment of dividends from the indenture governing the senior subordinated notes. In addition to that, given the high leverage and the substantial distribution of the cash flows, the dividend is more risky compared to a conventional dividend according to Debrah (2004). The issuer of the IDSs also has the possibility to defer the payment of interest for a significant period of time (up to 24 months) under certain circumstances. During an interest deferral period, the issuer is not allowed to make any dividend payments on the common stock. Furthermore, because of the subordinated nature of the notes underlying the IDSs, an investor may not be entitled to be paid in full in case of bankruptcy or liquidation. Also, there is a risk that the tax authorities can challenge the IDS structure and that the tax laws will change which would lower the free cash flow and, therefore, distributions to investors. Furthermore, by distributing almost all of

[5] In order for the IDS issuing company to be able to profit from a tax shield for U.S. tax purposes, at least 10% of the aggregate principal amount of the subordinated notes outstanding has to be placed separately (typically sold through private placement) with parties that do not hold IDSs or equity of the issuer and do not intend to do so according to McKim (2006).

the cash flows rather than reinvesting in the business, the company may sacrifice growth potential lowering its stock returns.

Companies that decide to issue IDSs are committed to cash flow generation to realize and maintain a high payout ratio. The management of an IDS issuing company is likely to have reviewed the company's investment opportunities and to have arrived at the conclusion that in order to maximize shareholder value, available cash is better distributed in the form of dividends than retained on the balance sheet. Therefore, steady, sustainable, and predictable cash flows are the central building block of the IDS structure. The most suitable companies are well-established businesses that exhibit a strong market position in a mature industry with comparably modest growth potential, typically in traditional industrial sectors.

The decision to combine equity and debt into one instrument leads to several advantages for the issuing company. First, as a significant part of the issuance consists of debt, the generated tax shield supports cash flow generation. The debt part also offers the advantage that, in contrast to traditional bond issuers, IDS issuers can arrange to suspend interest payments for as many as 8 quarters before investors have the right to take legal action leading into bankruptcy. This stands in contrast to the 30 days period after which traditional bond investors can take legal action according to Doherty (2004). The company has more room and flexibility regarding their interest payments.

Another important feature of the IDS issuance is that it gives companies access to the IPO market when there would be no market for their stock under a traditional IPO. The typical IPO company offers an investment case which is built around a 'growth story'. In contrast, for an IDS company, the focus lies on stable cash flow generation rather than on earnings and growth. Prior to the development of IDSs, companies with low growth potential had limited chances of selling their shares in the public market since a low growth prospect is not favorable for a company's valuation.

However, an analysis of Canadian income trusts by Debrah (2004) shows that income trust issuers trade at an EV/EBITDA premium to their standard corporate peers. As the IDSs are derived from the CITs, it is suggested that the IDS structure can also justify a higher valuation by offering unusual high distributions.[6] The potentially higher valuation makes an IDS IPO an attractive exit alternative for the selling sponsors compared to a sale or a traditional IPO according to Pincus (2005).

[6] In order to show the ability to service the monthly interest and dividend payments, the issuers have to include a twelve month forecast of free cash flow that meets the cash requirements of subordinated debt and equity in their issuing prospectus.

Although the IDS structure offers a tax shield and a potentially higher valuation, it also bears certain risks. As substantially all of the profits are distributed in form of interest and dividend payments, no resources are left to fund necessary capital expenditures or an acquisition in order to maintain the cash distributions. An IDS company, therefore, has less flexibility to act in a competitive environment. In addition, negotiations with senior lenders can be challenging since cash flows that might have been used for principal amortization prior to maturity is distributed to equity owners as dividends according to Bab, Furci & Rosen (2004). Moreover, the high payout ratio can challenge the financial position of the issuer. The financial health of the business is jeopardized since there might not be a substantial cash cushion left to rely on in case of unexpected events or during a downturn of the overall economy or the underlying business.

As a consequence of the additional subordinated debt issued, it is likely that the corporate credit rating for the outstanding debt will be downgraded by credit rating agencies according to Van Arnum (2004). Due to the high dividend-payout policy of IDS companies, financing flexibility decreases based on the fact that cash flow is used for dividend payments rather than for delevering the balance sheet through debt repayment or reinvestment. The companies are under pressure to maintain the high level of dividend payments because of the potential effect on their stock price. In addition to that, against the background of the commitment to distribute cash, the equity component of the IDSs obtains debt-like characteristics. The common stock takes on a structure similar to preferred stock which has a negative impact on the credit quality since preferred stock is considered to be debt rather than equity because of their limited voting rights and predetermined, fixed dividend amount. Due to these reasons, all other things being equal, a recapitalization with IDSs is supposed to have a negative impact on the corporate rating according to Richer (2004).

Finally, the continuous uncertainty regarding the tax treatment of the IDS structure by the IRS puts additional pressure on the credit rating of the IDS issuing companies. The characterization of the subordinated notes as equity would lead to an inability to deduct interest on the subordinated notes for U.S. federal income tax purposes and could lead to a possible clawback of prior years' tax liability according to Richer (2004). Surprisingly, the IRS has not reviewed the IDS structure so far.

2.3 The IDS Universe

Table 1 gives an overview of the companies that issued IDSs. All IDS IPOs were executed between December 2003 and August 2005. In total, twelve companies have issued IDSs, of which only four companies currently have actively traded IDSs outstanding. The remaining firms were either acquired and taken private, merged, went through a recapitalization and de-listed their IDSs or went into liquidation.

Table 1 about here

The issuers are all U.S. based companies and represent stable industries such as transportation, utilities, food and commercial services. However, the slow growing characteristic of the typical IDS firm is not always prevailing. For instance, Student Transportation of America Ltd., a provider of school bus transportation services in the U.S., has completed several acquisitions in the years prior to its IPO. Furthermore, FMF Capital Group Ltd., a nonprime residential mortgage lending company, has predicted strong growth in its IPO prospectus.

The majority of the issuances are equally split between IDSs and IPSs, although there are only minor differences. For the securities listed solely in Canada, the IPSs are the predominant version of the security. Eight of the twelve IDS IPOs were listed exclusively in Canada. This fact underlines the importance of this market for the hybrid securities. Only two companies listed their units on both markets. A possible reason for the fact that IDSs are primarily listed in Toronto is that the high yield bond market in the U.S., unlike in Canada, is well developed. As a result, there are a lot of competitive products to income stocks in the U.S. The fact that the majority of the IDSs are listed in Canada implies that distributions to unitholders are also paid in C$. However, as the U.S. based businesses generate income in US$, the companies are exposed to currency fluctuations.[7]

The size of the IDS offerings ranges from US$ 95m to US$ 275m with an average of US$ 201m. Nearly all of the issuers were owned by financial sponsors before the IPO. This underlines the significance of this particular IPO type as an exit strategy for private equity companies.

The higher risk of the subordinated debt component increases the cost of debt which results in coupon rates between 11.0% and 14.5%. However, it is noteworthy that one company – outsourced laundry equipment services provider Coinmach Service Corp. – has issued senior

[7] In order to mitigate the currency risk, the issuers have entered into forward contracts to purchase C$. The hedge rates used to fix the exchange rates between C$ and US$ are indicated in the IPO prospectuses.

secured notes as opposed to the common subordinated nature of the IDS debt component. Nevertheless, the company still paid an 11.0% coupon on its debt. The IPO price allocation to the share and debt component gives an indication on how the IDS investor's ownership is structured and how severe the proportionality of ownership issue is. Table 1 shows that the principal amount of the subordinated notes issued as percentage of the IDS IPO unit price varies between 25% and 65%. Although the mean ratio is close to 50%, only two issuances hold the proportionality of ownership issue (B&G Foods, Inc. and Otelco, Inc.). For the remaining issuances, the ratio between debt and equity is rather disproportionate.

The riskiness of the debt of the IDS companies is reflected in the leverage ratio which ranges between 3.0x and 6.6x. On average, the typical IDS company has a Total Debt/EBITDA ratio of 5.3x. This is considerably high compared to their industry peers and underlines the leveraged nature of the IDS companies.

In addition to the twelve IDS issuers in Table 1, at least 16 more have filed registration statements with the SEC or intended to issue IDSs but had to withdraw their plans later on by citing adverse market conditions or the complexity of the product. Other companies which intended to issue IDSs chose a traditional IPO with common stock only from the beginning on. The registration statements following the first IDS IPO were filed in a time when interest rates increased again, which resulted in tougher competition from corporate bonds with better credit quality. Additionally, at the time when the first IDSs were issued, the IPO market was at its trough and the first IDS IPO attracted attention due to their comparably high valuation. In an environment of a recovering IPO market at the end of 2004, similar returns were possible with common stock, IDSs suddenly appeared to be less attractive. Still, at this time, it was not expected yet that IDSs are going to disappear. However, some experts argued that only the weakest companies would use the IDS structure, since a traditional equity offering became easier as the market rebounded according to Tunick (2004). Moreover, the filers had to amend the terms of the deals several times due to tax related uncertainties. Besides structural issues where equity investors asked for more cash dividends, which was opposed by senior lenders, the fear that the expected financial performance of the candidates was too uncertain scared investors away according to Ferguson (2004).

Peng (2009) discusses further reasons why the IDS market in the U.S. did not boom. First, the SEC examines the proposed structure of the IDS offerings and the tax related issues very carefully. This additional effort in order to persuade the SEC of the structure may have prevented possible issuers from offering IDSs. Second, the structural requirement that 10% of the pre-IPO equity ownership has to be held as retained interest in form of a separate class of

common stock (spinster equity) for a period of two years following the IDS issuance results in a delayed exit of the financial sponsors and/or existing management of the company. However, private equity companies are usually not interested in a partial exit.

3 Valuation of Income Deposit Securities at IPO

3.1 Data

The sample consists of the complete universe of IDS issuances. Table 2 shows details on the IDS IPOs and the composition of the IDS securities. We obtain first day closing prices on the IPO dates from Datastream, the remaining information is taken from the corresponding IPO prospectuses filed with the SEC or the Canadian securities regulatory authorities.

Table 2 about here

All issues in C$ were sold at C$ 10.00 per unit while the public offerings denominated in US$ were priced somewhat higher. The price allocated to the components of the IDSs by the issuers is equivalent to the initial fair market value of the constituent common share and subordinated note. The initial fair market value of the subordinated notes equals their face amount. The units issued exclude the overallotment options, whether or not they have been exercised by the underwriters. The IDS companies issued between 9 and 32 million units. The IPO volume ranges between C$ 116m and C$ 325m for the C$ issues and between US$ 132m and US$ 261m for the US$ issuances. Converted to US$, the average IPO volume of all twelve IPOs amounts to US$ 201m.

Table 2 also depicts the first day returns. With an average (median) first day return of 1.5% (0%), we observe that in contrast to the first day premia as e.g. in Ritter & Welch (2002), IDSs did not exhibit the underpricing phenomenon (with the exception of Keystone North America). This finding supports the price allocations to the IDS components and is a first indication regarding the fair value of the IDSs assigned by the market at IPO.

An important selling point of the IDSs is the high blended yield offered by the hybrid security. As shown in Table 2, the annualized yield offered at IPO ranges between 10.0% and 11.5% with an average yield of 10.8%. The IPO yield is calculated based on the estimated cash distributions per IDS indicated in the IPO prospectuses divided by the IPO offer price of the corresponding IDS.

3.2 Methodology

We apply a valuation methodology based on the results of Kaplan and Ruback (1995) who show that the DCF method provides reliable results. Additionally, Kaplan and Ruback (1995) show that the DCF valuation combined with a multiples valuation based on comparable industry transactions is likely to lead to more accurate valuations. However, since IPOs of companies that have similar characteristics to the IDS companies in their respective industries are rare, multiples from comparable companies within the same industry are used instead of comparable transactions. We refrain from performing a dividend discount model since it does not include the examination of the fundamentals of the business and can be influenced by small changes in the underlying assumptions.

3.2.1 Discounted cash flow method

From a theoretical viewpoint, the IDS equity component is the residual value after the debt part has been determined based on an acceptable leverage level of the company. However, the valuation performed here takes an opposite approach by starting with the IDS equity value. The value of the equity component of the IDSs is determined by discounting the explicit levered 'free cash flows to IDS equity' for a projected period of five years. Equation (1) summarizes the free cash flow (FCF) to IDS equity calculation.

	EBITDA
-	Depreciation & amortization
=	EBIT
-	Interest expense
=	EBT
-	Taxes
=	Net income
+	Depreciation & amortization
-	Capital expenditures
-	Working capital change
-	Principal repayments
+	Proceeds from new debt issues
-	Dividend payments to other classes of stock
=	Free cash flow (FCF) to IDS equity (1)

In order to arrive at the residual cash flow attributable to IDS equity, any principal repayments and proceeds from new debt issues have to be considered. In addition to that and in contrast to the common FCF to equity calculation, as a typical IDS firm has other classes of

stock outstanding besides the IDS units (e.g. as retained interest of the selling sponsors), the expected dividends on these securities need to be deducted as well.

The projections of the performance measures needed in order to calculate the FCFs are based on estimates from equity research reports assuming that the analyst forecasts are the best proxy for the future performance of the IDS companies at the time of the IPO. For this purpose, we use initiating coverage reports from equity brokers issued at IPO. Where broker estimates do not cover the full projection period of five years, the estimates are extended using the analysts' growth rate and margins assumptions. For the companies that are not covered by brokers (such as Centerplate, Coinmach Service, FMF Capital and Royster-Clark) we make own projections based on historical performance described in the IPO prospectuses.

In addition to the explicit FCFs to IDS equity, we estimate the terminal value by using the perpetuity growth method. The long-term growth rate applied for the IDS companies varies between 1% and 2% and is based on research reports and sales growth during the projection period.

While a common approach is to use the Capital Asset Pricing Model (CAPM) for estimating the cost of equity, this method leads to unreasonably high valuations when applied to discount FCF to IDS equity. With the risk free rate being around 4.5% for the U.S. and Canada, a market risk premium of around 5.0% as well as generally low equity betas in the 0.4 – 0.7 range given the stable business of the IDS companies, the CAPM results in a cost of equity of below 9% in most cases. As the equity component of the IDS structurally ranks after the subordinated notes, the cost of equity should theoretically exceed the coupon paid on the debt component of the IDSs. Therefore, we determine the cost of equity applied to discount the free cash flows to IDS equity by adding 100 basis points to the interest rate paid on the subordinated notes. This results in discount rates between 12.0% and 15.5% and reflects the required yields by the IDS investors on the equity component.

We compare the calculated equity value to the IPO price allocated to the equity component in the IPO prospectus which gives a first indication of potential valuation differences. In a second step, we add the value of the debt component of the IDS to the implied equity value per IDS which results in the price per IDS unit. The implied IDS unit price is considered as the fair value of the IDS unit. Since the IDS units did not show material first-day returns, we take the IPO IDS offer prices as a benchmark to compare the fair values of the IDS units to. We calculate the deviation of the implied IDS unit price from the IPO IDS unit price to assess whether the IDS units were fairly valued at IPO or not. Equation (2) summarizes the described process:

	Sum of present values of explicit FCFs to IDS equity		
+	Discounted terminal value		
=	IDS equity value		
/	IDS units issued		
=	Implied IDS equity price	*Compared to IDS IPO share price*	
+	IDS debt component		
=	Implied IDS unit price	*Compared to IDS IPO unit price*	(2)

3.2.2 Comparable companies analysis

As a second approach, we value the IDS units by a comparable companies analysis. We put the equity and entity values in relation to EPS, EBIT, EBITDA, and sales. Depending on the business of the company, other industry-specific value drivers are relevant (e.g. price to book value for financial institutions). We select five publicly traded companies for each IDS company to perform the comparable companies analysis. Primarily, we select the peers based on similar product or service offerings and industry affiliation as well as information on competitors as described in the IPO prospectuses or other company filings. The selection is also based on information included in equity research reports where applicable. However, as some IDS companies operate in niche markets, it is rather challenging to find publicly traded pure-play companies that only have one major business line which is identical with the business line of the corresponding IDS company.

We use the latest twelve months (LTM) numbers as at the quarter ended prior to the IPO date of the corresponding IDS company as the denominators of the multiples based on the fact that LTM figures increase the comparability of the numbers by correcting for seasonality. We calculate based on this data, the following common multiples for the peers:[8]

Enterprise value (EV) based multiples:

$$\text{Revenue multiple} = \frac{\text{EV}}{\text{LTM Sales}}$$

$$\text{EBITDA multiple} = \frac{\text{EV}}{\text{LTM EBITDA}}$$

$$\text{EBIT multiple} = \frac{\text{EV}}{\text{LTM EBIT}}$$

[8] For FMF Capital Group, a mortgage lending company, the industry-specific price to book value (P/B) multiple is used instead of EV based multiples: P/B multiple = $\frac{\text{Closing price as at IPO date}}{\text{LTM Book value per share}}$

Equity value based multiple:

$$\text{Price/Earnings (P/E) multiple} = \frac{\text{Closing price as at IPO date}}{\text{LTM EPS}} \quad (3)$$

As the multiples can range rather widely, we chose the median to correct for outliers. The application of the four peer multiples leads to three different enterprise values and one equity value for each IDS company. As the goal is to compare the implied relative value per IDS unit with the IPO IDS price, we deduct net debt of the corresponding IDS company from the resulting enterprise values. To arrive at the equity value attributable to IDS equity only, net debt is defined as the sum of total debt (senior debt, subordinated notes that are part of the IDSs, bachelor bonds) and the value of other classes of stock (retained interest, in some cases depending on the organizational structure of the business referred to as minority interest), less cash & cash equivalents.

For the P/E multiple, we obtain the implied IDS equity value directly by multiplying forward EPS with the median P/E ratio from the peer group. To arrive at the implied IDS unit price, we add the value of the debt component of the IDS to the implied IDS equity price. In order to arrive at a single value to compare the IDS IPO price to, we calculate the average of the value estimates of the IDS unit prices based on the four different multiples. The approach is summarized in Formula (4). However, where a median peer multiple results in a negative IDS implied equity value or a negative EPS is forecasted, we exclude the specific value from the calculation of the average implied IDS unit price.

		EV / Sales	EV / EBITDA	EV / EBIT	P/E	
	Median peer multiple					
x	Performance measure IDS company					
=	Implied Enterprise Value					
-	Net debt					
=	Implied IDS equity value					
/	IDS units issued					
=	Implied IDS equity price					
+	IDS debt component					
=	Implied IDS unit price					*Average is compared to IDS IPO unit price*

(4)

3.3 Valuation results

3.3.1 Discounted cash flow method

Table 3 presents the valuation results for the IDS companies using the DCF method. Apart from the IDS IPO share price (column B), the value of the debt component (D) and the IPO price of the IDS unit (F), Table 3 shows the implied values of the equity components (A) and the implied price per IDS unit (E) based on the DCF valuation. The valuation differences between the DCF values and the IPO prices are calculated as the percentage deviation from the IPO prices. Column C compares the difference between the implied equity value and the IDS IPO share price (i.e. (A-B)/B), column G compares the implied IDS price to the IDS IPO unit price (i.e. (E-F)/F).

Table 3 about here

With respect to the equity component of the IDS units, Table 3 reports deviations from -40% to +46% with a mean and median of -0.8% and 2.8%, respectively. The two outliers in terms of deviation are Atlantic Power and Keystone North America. Their cost of equity is 12% and 15.5% which represent the low and high end of the cost of equity range for the IDS companies.

By adding the debt component to the implied equity values, the deviation range becomes narrower, between -23% and +20%. The results indicate that seven IDS companies were undervalued, compared to five companies that exhibited an overvaluation at IPO. On average, the IDS units were overvalued by 1% with the mean indicating an undervaluation of 1.1%. By looking at these two statistics, we can state that the IDS units were fairly priced at IPO based on a DCF valuation. Interestingly, Keystone North America, the only IDS company with a significant first day return of 11.5% and therefore indicating undervaluation, was overvalued by 23% according to the DCF valuation.

3.3.2 Comparable companies analysis

We report the results from the comparable companies analysis in Table 4. Columns A, C, E and G show the different multiples calculated for the IDS companies. For an assessment regarding the relative valuation, we indicate the multiples of the comparable companies analysis, too. The peers' multiples represent the median ratio of the comparable companies' multiples. For seven IDS companies, the median is actually computed on the basis of less than five comparable companies because of comparatively different EBITDA and EBIT margins.

As margins have an effect on the valuation and, therefore, on the multiples, we exclude the companies with comparably different multiples from the respective IDS company for the calculation of the median multiple. In addition to that, for Coinmach Service, a valuation based on comparable companies results in not meaningful valuation results since the application of the peers companies' trading multiples implies negative equity values based on comparatively lower valuations. For FMF Capital we use the industry specific price to book multiple instead of the enterprise value multiples.

Table 4 about here

By comparing column A to B, it turns out that the majority of the IDS companies were valued based on higher sales multiples than their industry peers at IPO. The sales multiples of the IDS companies vary in a range between 0.41x and 4.73x. Since cash flow is key for IDS companies, the EV/EBITDA multiple (columns C and D) is of special interest as the EBITDA multiple can be considered as a proxy of the cash flow multiple. Table 4 shows that out of eleven IDS companies, only five offered higher EBITDA multiples than their peers at IPO. Therefore, if the valuation is based on the EBITDA multiple only, the results do not support the theoretically higher IPO valuation for IDS companies compared to conventional companies. The IDS companies were valued 7.5x their EBITDA on average, with the same multiple applying for the average of their peers. With respect to the EBIT multiples (columns E and F), we observe a similar result to the sales multiples where the majority of the IDS companies exhibited a premium relative to its peers. The range of the IDS EBIT multiples is fairly wide, influenced by the two outliers Primary Energy Recycling and Student Transportation of America. Their comparably high EBIT multiples are based on low projected EBIT margins due to elevated depreciation and amortization expenses.

The results for the P/E multiple (columns G and H) are somewhat different although the ratios for the IDS companies diverge extensively, from 4.1x to 47.5x with a median of 20.2x. For four companies we cannot calculate P/E multiples due to negative or very small forecasted earnings. In addition to that, four IDS companies (B&G Foods, Keystone North America, New Flyer Industries and Royster-Clark) showed significantly different P/E multiples than their peers. Most of the remaining IDS companies exhibited higher P/E multiples than their comparable companies.

We obtain the implied IDS price by calculating the average of the valuations based on the four different multiples. Median peer multiples that lead to a negative implied equity value of

the IDS companies are excluded. We present the results in column I and compare them to the IDS IPO unit prices (column J). The deviations expressed as percentage points are depicted in column K. Based on a comparable companies analysis, the IDS units were undervalued by 9.0% on average with a median undervaluation of 14.7%. The results also indicate that the majority of the IDS companies were undervalued at IPO. The deviations range from an overvaluation of 31.1% (Keystone North America) to an undervaluation of 59.3% (New Flyer Industries). While the high valuation for New Flyer Industries is based on comparably higher sales and P/E multiples of its industry peers, the opposite is true for Keystone North America. Similar to the DCF valuation, Keystone North America marks the highest overvaluation.

3.3.3 Combined results

Kaplan and Ruback (1995) find that the comparable companies analysis performs especially well when combined with the results of the DCF valuation. Figure 1, therefore, summarizes the valuation results of the IDS units based on both valuation techniques. Except for Centerplate, Coinmach Service (where the multiples imply negative equity values), Primary Energy Recycling and Royster-Clark, both valuation methods result in a consistent over- or undervaluation. Additionally, both methods suggest that the majority of the IDS companies were undervalued at IPO. In general, the valuation based on multiples leads to higher valuation differences than the DCF valuation. We attribute this to the fact that it is rather difficult to find comparable peers for IDS firms because of different size, risk (i.e. leverage) and growth characteristics. Furthermore, while the DCF valuation indicates an average deviation of -1.0%, the comparable companies analysis results in a mean valuation difference of 9.0%. While the results of the DCF valuation indicate that the IDS units were fairly valued at IPO, the results from the multiples valuation suggest that the units were rather undervalued.

Figure 1 about here

Table 5 reiterates the results of the DCF valuation (column A) and the comparable companies analysis (B) and shows the average of the valuations from both valuation techniques for each IDS company (C). We take the average of both valuation results as benchmark to compare the IDS IPO price (D) to for the final assessment regarding the fair value of the IDS units at IPO. The evaluation with respect to the fair valuation of the IDS units depends on the deviation shown in column E. In absolute terms, eight out of the twelve IDS companies were underva-

lued at IPO, the remaining four were overvalued. On average, the IDS companies were slightly undervalued by 3.9% with a median undervaluation of 7.1%.

Table 5 about here

These results imply that on average, the IDS companies were fairly valued at IPO. However, the results range from -27.0% to +30.7%, suggesting an over- or undervaluation of individual IDS companies. As discussed above, the valuation results for Keystone North America and New Flyer Industries show the largest deviation from the IPO IDS price. The finding that the IDS companies were fairly valued on average is supported by the fact that the IDS companies did not exhibit significant positive average initial returns at IPO.

4 Performance Measurement of Income Deposit Securities

4.1 Style analysis

We perform a return-based style analysis following Sharpe (1992). It regresses the fund's or portfolio's time series of returns against a series of passive style indices to determine the combination of indices that best tracks the performance of the portfolio. Although an IDS is very transparent regarding its constituting parts as opposed to a mutual or hedge fund and is not managed in any way, it can still be viewed as a portfolio consisting of a combination of common shares, high yield bonds and – due to its sensitivity to interest rates – treasury yields. The analysis determines an IDS investor's exposure to major asset classes and can be compared to the initial price allocated to the equity and debt component of the IDS.

Debrah (2004) suggests that IDSs and CITs exhibit a substantial interest rate and credit spread sensitivity due to their analogy to high yield markets. Since rising interest rates negatively affect debt markets, IDS units are likely to be inversely correlated to interest rates as well and could therefore face downward pressure in sustained periods of rising interest rates according to Mitenko (2005) and Habermann and Ko (2004). Furthermore, as IDSs also contain an equity component, the IDS performance is exposed to the same risks as other common shares.

In order to make the style analysis dynamic, we introduce a rolling window of 52 weeks. Based on weekly continuously compounded returns of the IDS companies and the indices as presented in Table 6, we divide the analyzed period into two sub periods. The first sub period (first 52 weekly returns) is used as a basis for constructing the benchmark and is the sample

period. The sample period is then rolled forward week by week and the style analysis is performed for each new period, allowing the style benchmark weights to vary. The outcome is a time series of style weights of the asset classes for each period and for each IDS company.

Table 6 about here

4.2 Data

Table 6 shows descriptive statistics on the IDS units' performance. For the purpose of the style analysis, we obtain weekly total return indices of the listed IDS units in US$ for the period from the corresponding IPO date until October 16, 2009 from Bloomberg.

As benchmarks we use the MSCI North America, Citigroup Broad Investment-Grade (BIG) Bond Index and the Citigroup 1 Year Treasury Benchmark Index. All calculations are performed with continuously compounded returns.

Depending on the trading history of the IDS units, a range of 32 to 290 weekly returns is available for the analysis. For the benchmark indices, a total of 306 weeks is covered. The IDS units showed an average annual performance of 7.0%. This excludes FMF Capital, a mortgage lending company, since its share price was influenced by the suspension of the distributions on the common shares, class-action suits and later by the close-down of the business due to the severe deterioration of the U.S. nonprime mortgage market. FMF Capital's IDS units have never traded at their C$ 10.00 IPO price.

The IDS returns compare to an annualized return of 3.3%, 6.3% and 2.5% for the MSCI North America Index, the Citigroup BIG Bond Index and the Citigroup 1 Year Treasury Benchmark Index for the period between December 2003 and October 2009. On average, the IDS units performed better than the selected benchmark indices but also exhibited significantly higher dispersion. The annualized mean returns of the IDS units vary between -39% and +52%. However, it has to be considered that the returns of the outliers were also partly affected by corporate actions. The best performing IDS for the period considered was Royster-Clark, which only has a history of 32 trading weeks. The company went public in July 2005 and was acquired by Agrium Inc. in February 2006.

The variation is even larger with respect to the volatility of the IDS returns which ranges between 14% and 87% on an annualized basis. The average volatility of 43% appears to be rather high, even against the background of relatively high yields of the IDS units. With respect

to the benchmark indices, the annualized standard deviation amounts to 20.2% for the equity index, 8.8% for the bond index and 0.3% for the treasury yield index.

4.3 Results

Figure 2 summarizes the results of the investment style analysis, where the returns of each IDS are replicated by the return of a portfolio that is invested in the three benchmark indices. The style analysis cannot be performed for FMF Capital Group (the results based on a mean weekly return of -4.9% are not meaningful) and Royster-Clark (only 32 data points available). For the remaining ten IDS companies, the results are rather widespread, based on varying weekly returns and volatilities.

Figure 2 about here

The results of the style analysis show that the style weights are not stable over time as could be expected based on the composition of the IDS units in common shares and subordinated notes. Also, in contrast to our expectations, the allocated weights do not match the price allocation which had been made according to the IPO prospectuses. However, with the exception of Centerplate, the equity index seems to dominate the returns of the IDS units. This indicates that the IDSs rather behave like a stock than a debt instrument. This important part of the equity component compares to a range from 25% to 65% of the IDS prices that are allocated to the debt components. It is arguable whether the dominance of the share component is even larger, given the relatively poor performance of the MSCI North America Index during the period covered. However, we cannot determine a correlation of the dominance of the equity index style weights with MSCI North America's performance. Except for Keystone North America and Student Transportation of America, during the four quarters between October 2008 and October 2009, the performance of the equity index replicates IDS returns (based on the previous 52 weeks) best. In contrast to that, the equity index lost half of its value during the period between October 2007 and March 2009 due to the financial crisis.

Centerplate appears to be a special case, where the equity component turns out to be irrelevant for certain intervals. Either the bond index or treasury yield returns partly dominate the IDS returns. This could be ascribed to the high volatility of the returns of the company's IDS units. On the other hand, the returns of Primary Energy Recycling, which realized the largest negative annualized returns, are mainly driven by the returns of the equity index.

Apart from the dominant equity component, we also observe that the hybrid nature of the IDS units shows up in the asset allocation resulting from the style analysis. Interestingly, for Coinmach Service, Otelco and Primary Energy Recycling, the returns of the treasury yield index are likely to represent a larger share of the IDS returns than the returns of the bond index. The treasury yield seems to play an important role in general. With respect to the relationship of the dominance of the treasury bond and broad investment grade bond index returns on the IDS returns, there appears to be an inverse correlation. This specific pattern can partly be observed for most of the IDS units.

5 Conclusion

Developed on the basis of Canadian income trusts (CITs), an Income Deposit Security (IDS) is an exchange-traded unit that combines a common share and a subordinated note of a company, offering a comparatively high blended yield composed of regular (discretionary) dividend and interest payments. The security was introduced in the market with the IPO of Centerplate, Inc. in December 2003. A total of twelve companies issued IDSs in the U.S. and Canada between 2003 and 2005.

Due to the high leverage of an IDS company, a significant part of the free cash flow is distributed to IDS investors in form of deductible interest. This creates a tax-shield for the issuing company which reduces the company's income tax liability and therefore maximizes distributable after-tax cash flow. Based on the favorable tax treatment, the IDS structure has also attracted attention from the U.S. tax authorities which have not yet ruled on the matter. The all-dominant question is whether the subordinated notes are to be characterized as debt, therefore allowing the companies to deduct the interest payments for U.S. tax purposes. IDSs offer a comparably high yield (average yield of 10.8% based on IPO offering prices) which makes the IDS units attractive to investors. Additionally, investors have the possibility to separate the IDS units into their underlying components.

From the perspective of the IDS issuers, the focus lies on cash flow generation in order to support the regular cash distributions to the IDS investors. As cash flows are distributed instead of reinvested in the business, it is rather difficult for the well-established and modestly growing companies to accomplish an IPO. The perspective of a high payout ratio enables the IDS suited companies to access the IPO market. However, an issuance of IDS units can lead to a downgrade of the corporate credit rating which makes borrowing even more expensive

for the issuer. Also, the highly leveraged structure is likely to challenge the financial position during a downturn of the overall economy or the underlying business.

In a first step, we run a valuation of the IDS units at IPO. We perform a DCF valuation by discounting the FCFs to IDS equity. FCFs to IDS equity differ from common levered FCF calculations by deduction of dividend payments on other classes of stock. We compare the resulting IDS equity value per unit to the value allocated to the equity component of the IDS unit at IPO. Furthermore, we add the value of the debt component to the calculated IDS equity value and compare the sum of both to the IPO price of the IDS units. By looking only at the equity component of the IDSs, the DCF valuation results in an average deviation of -0.8% with the deviations ranging from -40% to +46%. If the debt component is added, the mean deviation amounts to -1.0%, indicating a slight overvaluation of the IDS units on average. By comparing the implied value of the entire IDS unit to its IPO price, the deviation range becomes smaller and spreads from an overvaluation of 23% to an undervaluation of around 20%. In summary, the DCF valuation leads to the conclusion that the IDS units were fairly valued at IPO.

Secondly, we compare the IDS IPS price to a comparable companies' median of LTM sales, EBITDA, EBIT and P/E multiples. The results indicate that the IDS units were undervalued by 9% on average. However, compared to the DCF valuation, the deviation range is larger, spreading from -31% to +59%.

Finally, we combine the results of the DCF valuation and the comparable companies analysis to assess the fair value of the IDS units. On average, the IDS units were slightly undervalued by 3.9% at IPO and the median deviation adds up to 7.1%. It can therefore be stated that on average, the IDS units were fairly valued at IPO. This result is supported by the fact that with a mean return of 1.5%, the IDS units did not exhibit significant positive initial returns at IPO. However, the deviations in the combined analysis range from -27% to +31%, indicating that there are individual differences regarding valuation at IPO within the group of IDS companies.

In the second part we perform a style analysis. The style weights results do not reflect the values allocated to the respective IDS components at IPO. They vary considerably for the different IDS companies as well as over the analyzed time. However, the IDS returns are dominated by the equity component. This suggests that the IDS units behave like a common share rather than a debt instrument. Due to the subordinated nature of the notes and their equity-like characteristics, this result seems to be reasonable.

Given the recent corporate actions of the remaining IDS companies, it is highly questionable if further companies will go public using the IDS structure. With the last IDS IPO dating back to 2005 and literally three companies left with the hybrid security, it seems like the once as innovative perceived instrument is close to becoming history – not only in the U.S., but also in Canada.

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Table 1
Overview of IDS companies

Company	*Business*	*Type*	*IPO*	*IPO volume (in US$ millions)*	*Interest rate on notes*	*IDS listed in*	*% of price allocated to debt component*	*Average Total Debt/EBITDA ratio*
Atlantic Power Corp.*	Utility	IPS	11/2004	265.1	11.00%	Canada	58%	6.6x
B&G Foods, Inc.	Food & condiments	EIS	10/2004	260.9	12.00%	U.S.	48%	6.3x
Centerplate, Inc.	Food related services	IDS	12/2003	251.8	13.50%	U.S. / Canada	38%	4.1x
Coinmach Service Corp.	Laundry equipment services	IDS	11/2004	250.1	11.00%	U.S.	45%	4.6x
FMF Capital Group Ltd.	Mortgage lending	IPS	03/2005	166.1	14.50%	Canada	65%	n/a
Keystone North America, Inc.	Funeral homes	IPS	02/2005	139.3	14.50%	Canada	43%	5.2x
Medical Facilities Corp.*	Hospitals	IPS	03/2004	165.5	12.50%	Canada	59%	3.0x
New Flyer Industries, Inc.*	Transportation	IDS	08/2005	166.1	14.00%	Canada	55%	6.2x
Otelco, Inc.*	Telecom	IDS	12/2004	131.6	13.00%	U.S. / Canada	49%	5.9x
Primary Energy Recycling Corp.	Waste energy recycling	EIS	08/2005	243.3	11.75%	Canada	25%	5.7x
Royster-Clark, Inc.	Agricultural chemicals	IDS	07/2005	274.7	14.00%	Canada	61%	6.0x
Student Transportation of America Ltd.	Transportation	IPS	12/2004	94.5	14.00%	Canada	38%	4.4x
High				*274.7*	*14.50%*		*65%*	6.6x
Mean				*200.8*	*12.98%*		*49%*	5.3x
Median				*204.7*	*13.25%*		*49%*	5.7x
Low				*94.5*	*11.00%*		*25%*	3.0x

Source: Bloomberg, IPO prospectuses.
Notes: The US$ equivalents of the C$ offerings are converted from C$ with the hedge rates indicated in the IPO prospectuses. The average Total Debt/EBITDA ratio is calculated from the average of the quarterly leverage ratios [(Short-time borrowings + Long-term borrowings)/LTM EBITDA] downloaded from Bloomberg. As FMF Capital operates in the financial industry, the leverage ratio is not reported because it is not meaningful.
* Have actively traded IDSs/EISs/IPSs outstanding. Status as at November 14, 2009.

Table 2
Characteristics of IDS IPOs

Company	*Bloomberg ticker*	*IPO date*	*IDS IPO unit price*	*Allocated to common share*	*Allocated to subordinated note*	*Units issued (in millons)*	*IPO volume*	*First day closing price*	*First day return*	*IPO yield*
Atlantic Power Corp.	ATP-U CN	18/11/2004	C$10.00	C$4.23	C$5.77	32.0	C$320.0	C$9.99	-0.10%	10.00%
B&G Foods, Inc.	BGF US	08/10/2004	US$15.00	US$7.85	US$7.15	17.4	US$260.9	US$15.00	0.00%	11.37%
Centerplate, Inc.	CVP US	05/12/2003	US$15.00	US$9.30	US$5.70	16.8	US$251.8	US$15.26	1.73%	10.40%
Coinmach Service Corp.	DRY US	19/11/2004	US$13.64	US$7.50	US$6.14	18.3	US$250.1	US$13.64	0.00%	11.00%
FMF Capital Group Ltd.	FMF-U CN	24/03/2005	C$10.00	C$3.48	C$6.52	19.8	C$197.5	C$9.65	-3.50%	11.00%
Keystone North America, Inc.	KNA-U CN	08/02/2005	C$10.00	C$5.71	C$4.29	17.1	C$171.0	C$11.15	11.50%	10.00%
Medical Facilities Corp.	DR-U CN	29/03/2004	C$10.00	C$4.10	C$5.90	22.2	C$221.7	C$10.54	5.40%	11.00%
New Flyer Industries, Inc.	NFI-U CN	19/08/2005	C$10.00	C$4.47	C$5.53	20.0	C$200.0	C$9.77	-2.30%	11.04%
Otelco, Inc.	OTT US	16/12/2004	US$15.20	US$7.70	US$7.50	8.7	US$131.6	US$15.25	0.33%	11.05%
Primary Energy Recycling Corp.	PRI-U CN	24/08/2005	C$10.00	C$7.50	C$2.50	28.5	C$285.0	C$10.00	0.00%	11.00%
Royster-Clark, Inc.	ROY-U CN	22/07/2005	C$10.00	C$3.92	C$6.08	32.5	C$325.0	C$9.96	-0.40%	11.51%
Student Transportation of America Ltd.	STB-U CN	21/12/2004	C$10.00	C$6.15	C$3.85	11.6	C$116.0	C$10.52	5.20%	10.75%
High									*11.50%*	*11.51%*
Mean									*1.49%*	*10.84%*
Median									*0.00%*	*11.00%*
Low									*-3.50%*	*10.00%*

Source: Datastream, IPO prospectuses.
Notes: Prices are indicated in the currency in which the IDSs were issued. The IDS IPO price allocation between the IDS components is determined by the issuer based on the fair market value of each constituent. The IPO volume is determined by multiplying the offer price per IDS by the units issued. The units issued and the IPO volume calculation assume that the overallotment option has not been exercised. The first day return is computed as [(first day closing price – IDS IPO price)/IDS IPO price]. IPO yields are based on the annualized dividends and interest payments of the IDSs. The dividend payments are obtained from the 'Summary of distributable cash flow of the issuer' section of each according IPO prospectus, the annual interest payments are calculated based on the stated coupon on the subordinated notes. The sum of both is divided by the IDS IPO price in order to obtain the IPO yield.

Table 3
DCF valuation results

Company	*A* *Implied share price*	*B* *IDS IPO share price*	*C* *Deviation from IDS IPO equity price*	*D* *Debt component*	*E* *Implied IDS unit price*	*F* *IDS IPO unit price*	*G* *Deviation from IDS IPO unit price*
Atlantic Power Corp.	US$5.13	US$3.51	***46.4%***	US$4.78	US$9.91	US$8.28	***19.6%***
B&G Foods, Inc.	7.96	7.85	***1.5%***	7.15	15.11	15.00	***0.8%***
Centerplate, Inc.	8.29	9.30	***-10.9%***	5.70	13.99	15.00	***-6.8%***
Coinmach Service Corp.	8.47	7.50	***13.0%***	6.14	14.61	13.64	***7.1%***
FMF Capital Group Ltd.	3.05	2.92	***4.2%***	5.49	8.53	8.41	***1.5%***
Keystone North America, Inc.	2.79	4.66	***-40.0%***	3.49	6.28	8.15	***-22.9%***
Medical Facilities Corp.	4.16	3.06	***36.0%***	4.40	8.57	7.47	***14.7%***
New Flyer Industries, Inc.	3.88	3.71	***4.6%***	4.59	8.48	8.31	***2.0%***
Otelco, Inc.	5.67	7.70	***-26.3%***	7.50	13.17	15.20	***-13.3%***
Primary Energy Recycling Corp.	7.00	6.40	***9.4%***	2.13	9.14	8.54	***7.0%***
Royster-Clark, Inc.	2.17	3.31	***-34.5%***	5.14	7.31	8.45	***-13.5%***
Student Transportation of America Ltd.	4.35	5.01	***-13.3%***	3.13	7.48	8.15	***-8.2%***
High			*46.4%*				*19.6%*
Mean			*-0.8%*				*-1.0%*
Median			*2.8%*				*1.1%*
Low			*-40.0%*				*-22.9%*

Source: IPO prospectuses, equity research reports.
Notes: Table 3 shows implied IDS unit prices based on a DCF valuation and compares these to the respective IDS IPO prices. The implied share price (column A) is obtained by dividing the sum of the present value of explicit FCFs to IDS equity for a projected period of five years and the discounted terminal value by the IDS units issued at IPO (assuming no exercise of the overallotment option). The cash flow projections are based on estimates from initiating coverage research reports. For IDS companies not covered by equity research, own projections are used. The implied IDS unit price (column E) is calculated by adding the value of the debt component as stated in the IPO prospectus (column D) to the implied share price. The US$ equivalents of the C$ offerings were converted from C$ with the hedge rates indicated in the IPO prospectuses. The deviations (columns C and G) are calculated by dividing the implied IDS prices by the IPO prices.

Table 4
Comparable companies analysis results

Company	*A* *EV/Sales*	*B* *EV/Sales peers (median)*	*C* *EV/ EBITDA*	*D* *EV/ EBITDA peers (median)*	*E* *EV/EBIT*	*F* *EV/EBIT peers (median)*	*G* *P/E*	*H* *P/E peers (median)*	*I* *Implied IDS unit price based on average of peers multiples*	*J* *IDS IPO unit price*	*K* *Deviation from IDS IPO unit price*
Atlantic Power Corp.	3.24x	2.67x	7.5x	8.6x	11.5x	12.5x	20.2x	15.7x	US$9.50	US$8.28	***14.7%***
B&G Foods, Inc.	1.58x	1.30x	8.2x	8.8x	9.1x	12.3x	7.3x	17.9x	20.06	15.00	***33.8%***
Centerplate, Inc.	0.58x	0.70x	6.3x	8.1x	12.4x	14.9x	31.7x	25.1x	18.40	15.00	***22.6%***
Coinmach Service Corp.	1.87x	0.94x	6.4x	4.6x	20.2x	11.7x	n/a	17.3x	n/a	13.64	***n/a***
FMF Capital Group Ltd.	n/a	n/a	n/a	n/a	n/a	n/a	6.8x	7.2x	9.10	8.41	***8.2%***
Keystone North America, Inc.	2.86x	1.78x	10.2x	8.9x	13.5x	12.8x	47.5x	18.3x	5.61	8.15	***-31.1%***
Medical Facilities Corp.	2.64x	1.53x	5.8x	8.0x	7.5x	10.7x	n/a	20.9x	9.57	7.47	***28.2%***
New Flyer Industries, Inc.	0.84x	1.12x	7.5x	8.3x	10.6x	9.7x	4.1x	15.4x	13.23	8.31	***59.3%***
Otelco, Inc.	4.69x	3.10x	7.8x	6.0x	10.8x	9.9x	20.2x	18.0x	12.06	15.20	***-20.7%***
Primary Energy Recycling Corp.	4.73x	3.13x	8.8x	9.0x	30.5x	13.7x	n/a	18.3x	6.08	8.54	***-28.8%***
Royster-Clark, Inc.	0.41x	0.73x	6.9x	5.9x	11.8x	9.3x	38.9x	15.0x	10.79	8.45	***27.7%***
Student Transportation of America Ltd.	1.38x	0.71x	6.7x	6.1x	39.9x	9.7x	n/a	11.4x	6.91	8.15	***-15.2%***
High	4.73x	3.13x	10.2x	9.0x	39.9x	14.9x	47.5x	25.1x			*59.3%*
Mean	2.26x	1.61x	7.5x	7.5x	16.2x	11.6x	22.1x	16.7x			*9.0%*
Median	1.87x	1.30x	7.5x	8.1x	11.8x	11.7x	20.2x	17.6x			*14.7%*
Low	0.41x	0.70x	5.8x	4.6x	7.5x	9.3x	4.1x	7.2x			*-31.1%*

Source: Bloomberg, IPO prospectuses, equity research reports.
Notes: Table 4 summarizes the valuation results based on a comparable companies analysis. Columns A to H compare the forward multiples of the IDS companies to the median LTM multiples of their respective peers. For each IDS company, we calculate LTM multiples for a set of five comparable companies (only four for Coinmach Service), and apply the median to the respective performance measure of the IDS company. The projected numbers are based on estimated figures from equity research reports. However, some IDS companies are valued on the basis of less than five peers due to comparatively different margins of some of the peers. The implied IDS price for each company (column I) is calculated as the average of the values obtained from the four different multiple valuations. Column K compares the implied IDS values with the IDS IPO unit prices. As the reporting currency of the IDS companies is US$, all IDS prices in C$ are converted to US$ using the hedge rate as indicated in the IPO prospectuses. For Coinmach Service, all peer multiples lead to negative implied equity values and for this reason, a valuation based on multiples cannot be performed. For FMF Capital, we apply the industry specific price to book multiple instead of the enterprise value multiples.

Table 5
Combined valuation results

Company	*A* *Implied IDS unit price based on DCF valuation*	*B* *Implied IDS unit price based on comparable companies analysis*	*C* *Average of both valuation methods*	*D* *IDS IPO unit price*	*E* *Deviation from IDS IPO unit price*
Atlantic Power Corp.	US$9.91	US$9.50	US$9.70	US$8.28	***17.1%***
B&G Foods, Inc.	15.11	20.06	17.59	15.00	***17.3%***
Centerplate, Inc.	13.99	18.40	16.19	15.00	***7.9%***
Coinmach Service Corp.	14.61	n/a	14.61	13.64	***7.1%***
FMF Capital Group Ltd.	8.53	9.10	8.82	8.41	***4.9%***
Keystone North America, Inc.	6.28	5.61	5.95	8.15	***-27.0%***
Medical Facilities Corp.	8.57	9.57	9.07	7.47	***21.4%***
New Flyer Industries, Inc.	8.48	13.23	10.85	8.31	***30.7%***
Otelco, Inc.	13.17	12.06	12.62	15.20	***-17.0%***
Primary Energy Recycling Corp.	9.14	6.08	7.61	8.54	***-10.9%***
Royster-Clark, Inc.	7.31	10.79	9.05	8.45	***7.1%***
Student Transportation of America Ltd.	7.48	6.91	7.19	8.15	***-11.7%***
High					*30.7%*
Mean					*3.9%*
Median					*7.1%*
Low					*-27.0%*

Notes: Table 5 summarizes the implied IDS unit prices based on a DCF valuation (column A) and a comparable companies analysis (column B) for each IDS company at its IPO. We compare the average of both valuation results (column C) to the corresponding IDS IPO unit price (column D) and show deviation percentage points in column E. All IDS units issued in C$ are converted to US$ using the hedge rate as indicated in the IPO prospectuses.

Table 6
Descriptive statistics on IDS units' performance

Company	*N*	*Period covered*	*Mean weekly return*	*Annualized mean return*	*Annualized volatility*
Atlantic Power Corp.	256	11/2004 - 10/2009	0.26%	13.4%	35.4%
B&G Foods, Inc.	262	10/2004 - 10/2009	0.21%	10.8%	43.7%
Centerplate, Inc.	269	12/2003 - 01/2009	-0.44%	-22.6%	86.5%
Coinmach Service Corp.	157	11/2004 - 11/2007	0.38%	19.6%	13.9%
FMF Capital Group Ltd.	102	04/2005 - 03/2007	-4.86%	n/m	n/m
Keystone North America, Inc.	244	02/2005 - 10/2009	0.04%	2.0%	35.3%
Medical Facilities Corp.	290	04/2004 - 10/2009	0.23%	12.0%	33.3%
New Flyer Industries, Inc.	217	08/2005 - 10/2009	0.26%	13.6%	41.8%
Otelco, Inc.	252	12/2004 - 10/2009	0.15%	7.6%	54.7%
Primary Energy Recycling Corp.	216	09/2005 - 10/2009	-0.74%	-38.5%	60.8%
Royster-Clark, Inc.	32	07/2005 - 03/2006	0.99%	51.6%	44.9%
Student Transportation of America Ltd.	240	12/2004 - 07/2009	0.14%	7.1%	26.8%
High [(1)]			*0.99%*	*51.6%*	*86.5%*
Mean [(1)]			*0.13%*	*7.0%*	*43.4%*
Median [(1)]			*0.21%*	*10.8%*	*41.8%*
Low [(1)]			*-0.74%*	*-38.5%*	*13.9%*
Benchmark indices					
MSCI North America	306	12/2003 - 10/2009	0.06%	3.3%	20.2%
Citigroup Broad Investment-Grade (BIG) Bond Index	306	12/2003 - 10/2009	0.12%	6.3%	8.8%
Citigroup 1Yr Treasury Benchmark	306	12/2003 - 10/2009	0.05%	2.5%	0.3%

Source: Bloomberg.
Notes: Table 6 shows mean weekly returns, annualized mean returns and annualized volatility of the IDS units and three benchmark indices. *N* indicates the number of weekly returns that are available for the analysis. The continuously compounded returns are calculated on the basis of total return indices, downloaded in US$. The annualized mean returns are obtained by multiplying the mean weekly returns by 52. Annualized volatility is calculated as the standard deviation of the weekly returns multiplied by √52. For FMF Capital, annualized return and volatility do not deliver meaningful results since the company has been in the process of an orderly wind-down of the business and its operations.
(1) Excludes FMF Capital.

Figure 1
Combined valuation results

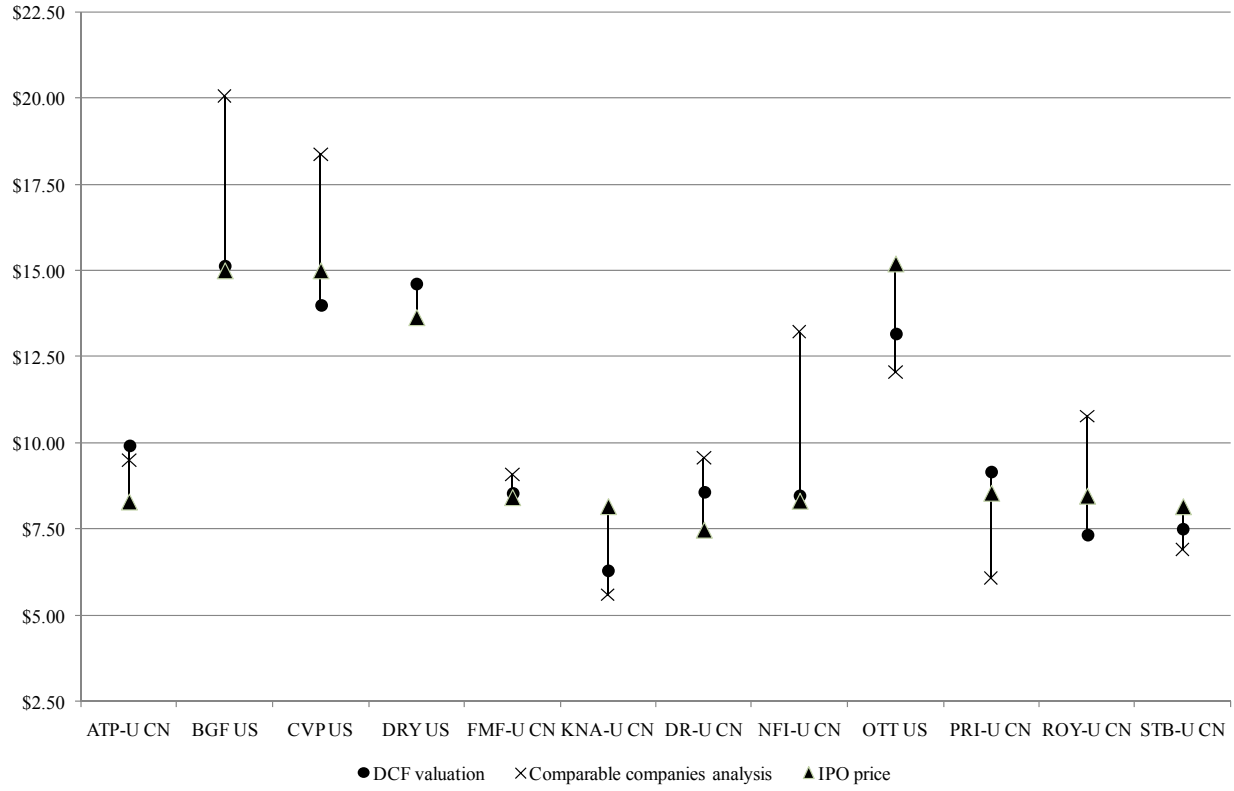

Figure 2
Style analysis of IDSs